

POPULAR COMMUNICATIONS

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- **Smart Radios: They're Here!**
- **Selected English Language Broadcasts: Fall '94**
- **Tomorrow's Beepers, Today**
- **Diversity Receiving Antennas**

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*Staff review
Popular Communications*

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73 Amateur Radio Today*



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² blocked 800 - 900 MHz
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After 26 April 1994, it is illegal to manufacture or import scanning receivers that cover or can easily be modified to cover cellular bands. However, new and used scanners in U.S. before 4/94 may be sold without restriction... BUT HURRY!!! LIMITED QTY.!!!
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^Δ - 800 - 900 MHz blocked

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This month's cover: New York State Police Helicopter Pilot John Ludwig circles over a toll plaza on the New York State Thruway at Harriman, NY. (Photo by Larry Mulvehill, WB2ZPI)

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■ Universal M-8000 Decoder



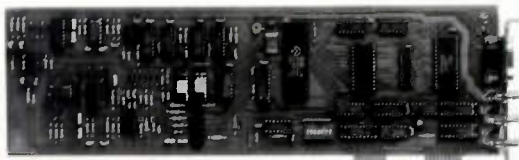
The professional-grade M-8000 was designed primarily for the military, commercial and diplomatic user, but can be used by the hobbyist who requires maximum intercept capability. The color VGA output includes a spectral display and simulated tuning scope plus five tuning bars. Modes currently include: **CW, Baudot, SITOR A & B, ARQ-M2 & M4, ARQ-E & E3, ARQ6-90, ARQ-S, SWED-ARQ, FEC-A, FEC-S, ASCII, Packet, Pactor, Piccolo, VFT, ACARS, POCSAG and GOLAY.** Plus display modes for: Russian Cyrillic, Literal and Databit analysis mode. Breathtaking FAX images to VGA monitor or printer. 115/230 AC 50/60 Hz. Too many features to list here. Please contact Universal for full specifications on this amazing device. Monitor optional. **\$1349.00 (+shipping)**

■ Universal M-400 Reader



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■ Universal M-1200 Decoder Card



Turn your IBM computer (or compatible) into a powerful intercept device! The Universal M-1200 Decoder Card requires just one full-size slot in your PC. Reception modes include: **Morse, Baudot RTTY, SITOR A/B, FEC-A, ARQ-M2, ARQ-E and ARQ-E3** plus **ASCII and Packet.** VHF enthusiasts can copy **ACARS** aviation mode, **POCSAG** and **GOLAY.** Advanced RTTY DXer's will appreciate the **Databit** and **Literal** modes, helpful in protocol identification and decryption. The video quality of your FAX intercepts will amaze you. Advanced FAX imaging includes false-color and zoom features. FAX images as well as text traffic can be saved on to disk. Operation is easy through on-screen menus, status indicators and help windows. A **datascope** feature operates in both RTTY and FAX modes. The M-1200 comes with an informative manual and software on a 3 1/2" 720K disk. Requires PC computer with VGA monitor. One year limited warranty. Made in the U.S.A. **\$399.95 (+shipping)**

■ Universal M-900 VF Decoder



Here is a compact, easy-to-use decoder that copies the most important shortwave transmission modes: **Morse** code for monitoring hams, ships and coastal stations. **Baudot** radioteletype is included for decoding weather and international press. Both **SITOR A & B** are supported for monitoring the extensive maritime and diplomatic traffic. The new **FEC-A** European press mode has also been added. **FAX** mode lets you receive maps and pictures from around the world. The Universal M-900 requires a composite video monitor. Now includes 12VDC P.S. Made in USA. **\$489.95 (+shipping)**

COMMUNICATIONS RECEIVERS



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Universal Radio carries an excellent selection of new and used communications receivers. The new affordable Drake SW-8 is shown above.

COMMUNICATIONS BOOKS

- **Passport To Worldband Radio** By L. Magne
Graphic presentation of all shortwave broadcast stations. Equipment reviews, too. A must have book. **\$16.95 (+\$1)**
 - **Shortwave Receivers Past & Present** By F. Osterman
Your guide to over 200 receivers with new and used values, specifications and features. Photos for most. **\$8.95 (+\$1)**
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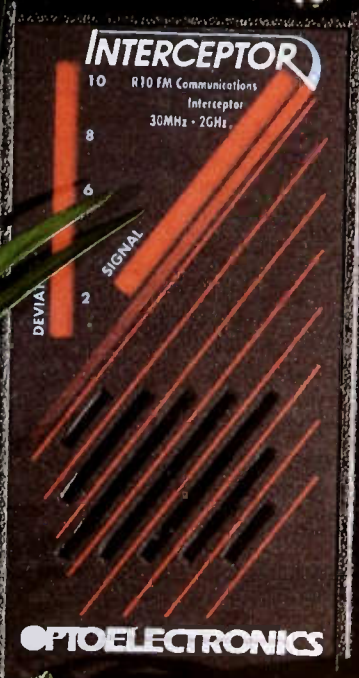


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R10 checks coded squelch codes with DC440 Decoder

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DC440 Decoder	\$259.
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BEAMING IN

AN EDITORIAL

The Case for Re-Forming

Most license applicants for public safety and all categories of commercial land mobile communications stations are required to participate in a process called "Frequency Coordination." In general, the process requires that, prior to filing a station license with the FCC, it must first be submitted for the checking and approval of an FCC approved Frequency Coordinator.

Each of the different categories and classifications of radio services has its special Frequency Coordinator, being that radio service's leading professional users' membership organization. The basic function of a Frequency Coordinator is to look over each application within his own specialty, checking it for errors and missing items.

This is a valuable service, inasmuch as not all of those applying for radio licenses are familiar with communications, the terms, equipment, frequencies, etc. They can become puzzled by, or stumble over, some of the questions. So they leave them blank, or fill in something wholly inappropriate. Maybe they ask for a frequency that isn't available. The Frequency Coordinator is supposed to check over and give the OK to these applications, so that only properly filed ones eventually arrive at the agency's offices. Messed up ones can be worked out with the applicants, and advice provided as required for another try.

This procedure appears to work well much of the time, having the potential of saving the FCC lots of time, and the public many FCC-rejected license applications. The FCC recently conducted a two-month

review of its Frequency Coordinators to check on the error rate of the coordinators, themselves.

The Petroleum Frequency Coordinating Committee, which handles the Petroleum Radio Service, had no errors. Other perfect scores were rung up by the Newspaper Association of America, and the International Municipal Signal Association.

Nearly perfect records (2 percent error rate, or less) were graded for both the American Trucking Association, Inc., and the Manufacturers Radio Frequency Advisory Committee.

Then there were Frequency Coordinators showing mixed results. The Associated Public Safety Communications Officers, Inc. held a perfect error-free record in UHF-T band Police and Local Government Radio systems, as well as no errors for 800 MHz band trunked SMR and Emergency systems. However, APCO was rated with a 2.71 percent error rate for Police and Local Government Services below 470 MHz, a 19.35 percent error rate for 800 MHz non-trunked Public Safety and Emergency systems, and a 25 percent error rate for 800 MHz band trunked Public Safety and Special Emergency systems.

The Industrial Telecommunications Association was error-free in Frequency Coordinator functions for 800 MHz trunked SMR services, but varied between error rates of 3.28 and 25 percent in five other 800 MHz categories, and had a 16.67 percent error rate in the UHF-T band. The National Association of Business and Edu-

cational Radio, Inc. was error-free for its 800 MHz trunked SMR systems, too, but, it also showed up in the FCC review with error rates ranging from 3.07 to 23.81 percent in six other 800 MHz radio services.

Various other Frequency Coordinators ranged between about 3 and 14 percent. The Alliance of Motion Picture and Television Producers had a 25 percent error rate. The International Taxi and Livery Association showed up with a 12.28 percent error rating on systems below 470 MHz, but a 50 percent error-rate (highest rate of errors in the survey) for the UHF-T systems it processed.

Do these error rates tell us anything? It shows us that even the worthy, diligent, and valuable Frequency Coordinators seem to be confused about how to properly evaluate information on at least some of the FCC forms. It's my belief that this is because many of the application forms are complicated and confusing. So you can also pity the average applicant, such as the person who understands MegaHertz to be the name of a new rock group, and believes HAAT is what you use for swatting flies when you don't have a newspaper handy.

At the very least, people ranging from novices to professionals are definitely having problems dealing with FCC license forms and their instructions. Being forced to jump through the FCC's complicated hoops is an unnecessary burden placed on those seeking the convenience of telecommunications. As a public agency, the FCC should, itself, be willing to match the mandate it demands of its licensees, to wit, meeting the public's interest, convenience, and necessity.

Therefore, the FCC needs to seek outside sources for help. They must enlist the services of educators, communications personnel, and media creative types, to work with FCC license processing personnel. The FCC should then look towards dumping many of its stuffy license application forms and instructions. People from outside the agency should review the purpose and requirements of the various forms, then each should be completely rewritten in a format and the type of language that its future users can easily handle.

A few years ago, POP'COMM ran a letter from a West Coast reader who told of trying to renew his Business Radio Service license. He mailed off the form, along with his check. Eventually the renewal was bounced by the FCC, although his money was kept. The FCC notified him that his renewal had been rejected because he had neglected to sign the application. The

(Continued on page 82)



The 1960's ABC-TV realistic police program kept using CB radios as police radio props. Either the producers didn't know the difference, or assumed audiences didn't.

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was written with you, the
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MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 N. Broadway, Hicksville NY 11801.

Those Were Good Words

In the *Telephones Enroute* column last April, you were kind enough to mention our Cellular Surveillance Interface. Many thanks. It took us a while to figure out why we were getting a number of telephone calls from all over the world. Your magazine and this column in particular has a wide-based audience. Once again, many thanks for your efforts.

W.J. (Bill) Fischer,
Electronic Countermeasures Inc.
Calgary, Alberta, Canada

Looking for Paperwork

I'm a faithful reader of *Popular Communications*, and am appreciative of the fine job you and your staff accomplish on a consistent, monthly basis. SWL'ing and AM/FM DX'ing are long-time hobbies of mine since childhood, and have brought me innumerable hours of pleasure. They are also of immense assistance to my professional duties, first as an Active Duty Army Officer, and then as an Attorney on the Counterproliferation and Arms Control Staff of the United States Defense Nuclear Agency.

I carry a portable radio receiver on my many trips abroad, and I can't begin to tell you how many diplomats and fellow officers from both friendly and not-so-friendly countries have shared evenings with me scanning the waves for a few minutes of the comforting sounds of home.

A key component of my radio "shack" has been a General Electric Model 7-2990 AM/FM/LW/SW receiver. This is a fantastic piece of equipment with excellent sensitivity and range. Not only that, it has an analog tuner and a digital read-out. During the course of a recent change of residence, the analog tuner mechanism broke. The model dates from the mid-1980's and is no longer in production. I have contacted the manufacturer, and despite their helpful guidance in referring me to several private firms that supply obsolete GE parts and specs, I have been unable to locate any specs or diagrams for this particular model. Without specs or diagrams, no local service facilities will tackle a repair.

Of interest is the fact that spare parts are available to fix this problem (which appears to have been a common weakness in the overall production of the model and may have been a factor in GE's decision to discontinue production).

Can any POP'COMM reader assist me in locating specs and diagrams for this model? I will gladly pay the appropriate fee. While I could use this as an excuse to purchase a newer receiver, this model holds a great deal of sentimental value and I hope to avoid consigning it to the scrap heap.

Jonathan D. Fox, Esq., CW/BW,
Counterproliferation Specialist,
HQ DNA: ATTN: OPAC/ACCW
6801 Telegraph Road,
Alexandria, VA 22310-3398

Radio Paging Comment

While not exactly within the scope of your story on pagers ("The Secret Life of Beepers," July issue), I would like to mention that all scanner owners know that nothing causes more interference than tone paging signals.

Additionally, I note that paging companies operated by telephone answering services often have a voice pager channel. One in my area routinely pages a local security firm's personnel to direct them to various trouble sites. This invariably comes prior to police being dispatched to the same locations. That makes the pager an especially useful early alerting device.

G.M.,
Nanaimo, B.C., Canada

Regarding your July article, law enforcement personnel aren't the only ones cloning pagers. Criminals have also taken to this activity.

Once the legitimate pager's CAP code has been associated with a particular phone number, the pager is cloned and the criminal now uses the legitimate subscriber's pager phone number for his "transactions." The paging service subscriber just notices an increased number of "wrong" pages. This makes it very difficult for law enforcement authorities to track down the nefarious individual.

Good advice to paging subscribers: If you suddenly notice an increase in "wrong" or weird pages, you may wish to contact your paging service and perhaps get a new pager phone number.

Just goes to show you; for any given technology, there will always be a criminal element waiting to exploit it for bad ends. I guess that's the price we pay for a free society.

Love the magazine. Keep up the good work!

Richard, N7UFG,
Bremerton, Wash.

It's always something!—Editor.

Scanners/CB/Ham/Shortwave

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Emergency Operations Center



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54,000 - 71,995 MHz (WFM), 72,000 - 75,995 MHz (NFM),
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216,000 - 224,995 MHz (NFM), 225,000 - 399,995 MHz (AM),
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894.0125 - 1,300,000 MHz (NFM).

The new Bearcat 8500XLT gives you pure scanning satisfaction with amazing features like Turbo Scan. This lightning-fast technology featuring a triple conversion RF system, enables Uniden's best scanner to scan and search up to 100 channels per second. Because the frequency coverage is so large, a very fast scanning system is essential to keep up with the action. Other features include VFO Control - (Variable Frequency Oscillator) which allows you to adjust the large rotary tuner to select the desired frequency or channel. Counter Display - Lets you count and record each channel while scanning. Auto Store - Automatically stores all active frequencies within the specified bank(s). Auto Recording - This feature lets you record channel activity from the scanner onto a tape recorder. You can even get an optional CTCSS Tone Board (Continuous Tone Control Squelch System) which allows the squelch to be broken during scanning only when a correct CTCSS tone is received. 20 banks - Each bank contains 25 channels, useful for storing similar frequencies in order to maintain faster scanning cycles. For maximum scanning enjoyment, order the following optional accessories: PS001 Cigarette lighter power cord for temporary operation from your vehicle's cigarette lighter \$14.95; PS002 DC power cord - enables permanent operation from your vehicle's fuse box \$14.95; MB001 Mobile mounting bracket \$14.95; BC005 CTCSS Tone Board \$54.95; EX711 External speaker with mounting bracket & 10 feet of cable with plug attached \$19.95. The BC8500XLT comes with AC adapter, telescopic antenna, owner's manual and one year limited warranty from Uniden. Order your BC8500XLT from Communications Electronics Inc. today.

CB/GMRS Radios



A National Weather Service (NWS) receiver with automatic emergency broadcast activation has been added to the legendary Cobra 29 CB radio. The integrated NWS receiver in the Cobra 29LTDWX will automatically activate to receive emergency announcements about severe weather and travel conditions. A special tone-alert signal broadcast by the NWS activates the weather receiver and overrides any CB radio reception for monitoring the warning message.
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CIRCLE 28 ON READER SERVICE CARD

Weather Stations

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The Weather Monitor II (7440-K) comes complete with anemometer with 40 feet of cable, external temperature sensor with 25 feet of cable, junction box with 8 feet of cable, AC power adapter, detailed instruction booklet and one year limited factory warranty.



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Frequency Coverage: 25,000 - 549,995, 760,000 - 823,995, 849,0125 - 868,9950, 894.0125 - 1,300,0000 MHz.

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Bearcat 220XLT-K handheld	\$228.95
Bearcat 200XLT-K handheld	\$198.95
Bearcat 148XLT-K base/WX alert	\$88.95
Bearcat 120XLT-K handheld	\$148.95
Bearcat BCT2-K info mobile	\$138.95

Smart Radios— They're Here!

RDS—Why You're Gonna Love Your Next FM Radio!

BY MILES BEAM

As Joe was driving down the highway, the car radio stopped playing the tape, changed stations, blared a message issuing a tornado warning, and then tuned back to the original station. It later did the same thing for a traffic report! What's going on here? UFOs? Electrical interference? Absolutely not—it's a brilliant new technology called RBDS (Radio Broadcast Data System) and it's the hottest development in radio technology since FM stereo!

RDS—What is it?

RBDS is the U.S. implementation of a technology that's been utilized in Europe for a number of years, known as RDS (Radio Data System). In short, RDS allows FM radio stations to broadcast data that can be displayed and used by RDS capable radio receivers. Most experts in the U.S. refer to this technology by its European name, RDS. In the U.S., the terms RDS and RBDS are often used interchangeably.

RDS allows a radio station to broadcast its call letters, program type, clock time, and other information about its programming. Radio stations will also be able to broadcast short messages called "radio text." Some RDS capable receivers will not only be able to display the call letters and program type on the front panel, but will also display radio text messages.

The features of RDS will make it much easier for a listener to tune a radio. If you only want to scan for stations identified as a certain type, such as classical or easy listening, you can program your radio to do so. Other benefits of RDS include the ability to scan for a traffic report or an emergency warning message. That means you can listen to a tape or CD in your car or home and your radio will automatically interrupt the music long enough for you to hear the announcement.

The ability of an RDS receiver to display radio text messages opens up a plethora of possibilities. Stations can use the radio text messages to display artist and song title information. Or they can also use them to scroll advertising messages, the station's phone number, or virtually anything else in the broadcaster's imagination. It is conceivable that the ability to display an advertiser's phone number along with the audio advertisement will make a station's air time

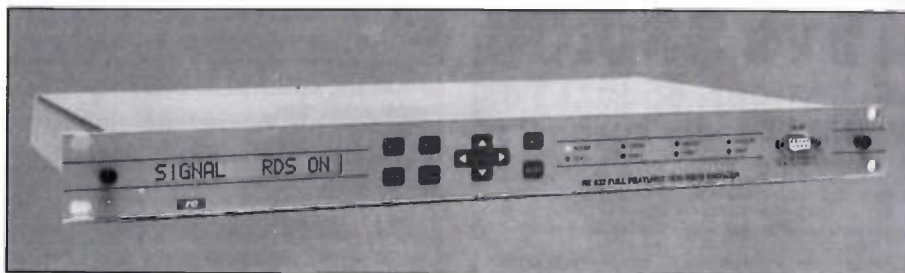


Figure 1. What the radio station needs: RE America's Model RE 532 RDS/RBDS Encoder.

more valuable. Be careful when purchasing receivers though, because not all RDS receivers will support the radio text feature.

Technically speaking, RDS information is broadcast on a subcarrier at a frequency of 57 KHz. The data rate is relatively slow, 1187.5 bits per second. The system is compatible with other subcarriers that a station may have on the air and does not interfere with the main signal.

In the future, as more stations begin broadcasting RDS information, even more intriguing scenarios are possible. As you drive out of the range of the selected station, RDS will allow the radio to scan for that particular program on the next strongest station signal. Theoretically, you could listen to the same radio program while driving across several states and not have to manually change your radio station.

Equipment Available Today

RDS has the potential to catch on quickly. Presently, more than 150 stations are broadcasting RDS information. The equipment necessary for a station to implement RDS is relatively inexpensive, with cost ranging from \$1,000 to \$5,000. To implement RDS, a station must purchase an RDS encoder, which is available from several manufacturers. Figure 1 shows a model RE 532 RDS encoder from R.E. America.

On the consumer side, RDS capable receivers are already available for both the home and auto market. Onkyo introduced the model T-450RDS AM/FM tuner for home use in the Fall of 1993. This tuner features a large window capable of displaying radio text messages that can be easily read from some distance away. Another

good sign that RDS will catch on is the availability of RDS receivers from Delco Electronics. Delco's receivers should be available this Fall through GM dealers. These receivers can even be swapped out with GM car stereos for year models as far back as 1982. Other manufacturers, such as Denon Electronics have already introduced RDS car receivers as well. The Denon units are really slick, and include removable front panels (to deter theft) and a choice of LED display colors. Figure 2 shows an RDS capable receiver, the Denon model DCT-950R receiver with CD player. Note the RDS letters and logo in the center of the unit.

The technology is still so new that most people have yet to hear of it. Some RDS receivers have been purchased by consumers without them even being aware of it. RDS receivers can usually be identified by the letters "RDS" on the front panel and/or the RDS logo, which resembles a figure eight on its side. Except for the logo on the front and a few unusual buttons, an RDS receiver looks very much like any other modern day receiver, especially when receiving a non RDS signal.

RDS—Radio's Link to the Information Highway

Perhaps the most intriguing aspect of RDS is the doors that are opened by the adoption of the RDS system. A large number of adjunct services are now possible. To provide a glimpse over the horizon, let's take a look at just a few:

Paging Applications—Some companies are providing paging services using RDS capabilities. Companies such as Access USA (Metairie, LA) offer a nationwide

Data Broadcasting Technology—Information Right to Your Desktop

In the future, you may not have to dial out through the phone lines to your favorite BBS for the information you need. You might just turn on your computer and find that it has already been delivered, right to your desktop!

For companies who need to distribute data to a large number of locations, data broadcasting technology is rapidly becoming the solution of choice. Technically referred to as point to multi-point communications, data broadcasting systems have been used for years. Direct Broadcast Satellites (DBS) have been utilized as the primary medium for data broadcast applications for nearly a decade. Today, with the advent of low cost "off the shelf" hardware, radio and TV stations now have the capability to implement their own data broadcast networks, and have certain advantages over satellite based systems. Radio and TV signals can reach mobile users much easier than satellite signals, which require large fixed receiving dishes. In addition, radio and TV stations can provide data economically which is customized for the local broadcasting region. For national or international coverage though, DBS services are tough to beat, and are less expensive than most people think.

Radio stations can send electronic data via FM subcarriers at 67 or 92 kHz at speeds up to 9600 baud, or at 57 kHz using RDS (Radio Data System), though at a much lower data rate. Low cost receivers are available from several vendors that make the per site costs of the receiving hardware very affordable. Data broadcast networks have the advantage of a fixed cost for air time regardless of the number of receiving locations, and all recipients get the data at the same time. TV stations have tremendous, largely untapped capability to transmit electronic data via their SAP (Second Audio Program) or PRO (Professional) channels in the future. TV stations also have the capability to transmit data using

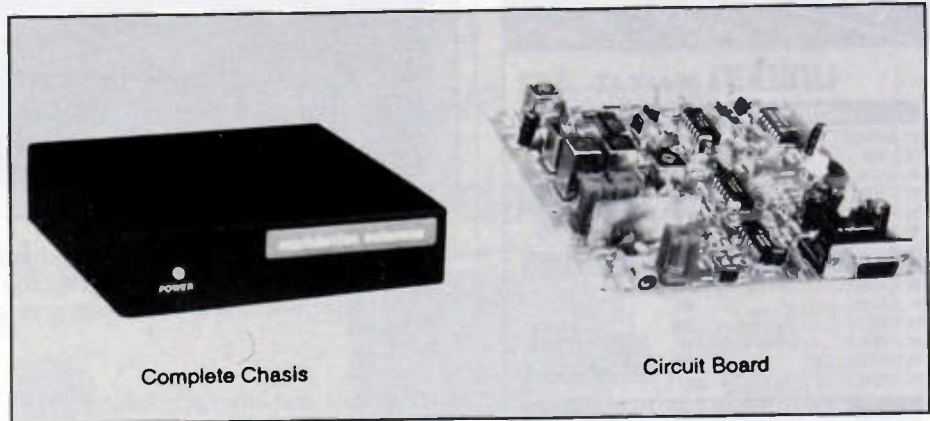


Figure 1. FM data subcarrier receiver from Modulation Sciences, Inc.

the VBI (Vertical Blanking Interval). This technology allows data at rates from 9600 baud to over 150 kbit/sec to be inserted into the blank lines that make up the VBI. The VBI is that black line that you sometimes see when your vertical hold needs adjusting, and is used to line up the picture on your TV. Other technologies, like those from Wavephore Inc. (Tempe, AZ) allow data to be inserted at rates of 384 kbit/sec in the active portion of the video signal, without loss of picture quality. Plans for up to 1.5 Megabits/sec capabilities are in the works. And of course there's the value of the terrestrial cable TV infrastructure. Data may soon be broadcast over terrestrial cable systems in the future. A set top box could pipe data right into your PC.

Companies such as Modulation Sciences, Inc. (Somerset, NJ), SCA Data Systems (Santa Monica, CA) and Applied Microtechnology (Kansas City, KS) have low cost FM subcarrier receivers available today that can be implemented in an FM subcarrier data network. Encoders are available from these manufacturers as well.

Figure 1 shows an example of an FM data subcarrier receiver from Modulation Sciences, Inc.

Off the shelf hardware has been available for some time to facilitate these types of systems, but information providers have largely had to develop their own data broadcast software. Even that has changed, thanks to a product from Milestone Technologies Inc. (Raleigh, NC) called SATX. Possibly the first "off the shelf" product of its kind, SATX provides a one way file transfer protocol that is more robust than FEC (Forward Error Correction) and allows even large binary files, such as multimedia files and even entire software applications, to be transferred over data broadcast networks.

With the continuing development of all these technologies, the next decade may see a blurring of print media, such as magazines and newspapers, with wireless broadcast media, such as radio and TV stations. Advertising kiosks, electronic trading networks, and electronic distribution of newspaper information are likely initial projects.

alphanumeric messaging system using RDS compatible handheld data terminals.

Differential GPS—Most technophiles are familiar with GPS (Global Positioning System). A GPS receiver utilizes signals sent by orbiting satellites to establish its own latitude and longitude, within an accuracy of about 100 meters. Companies such as DCI (Differential Corrections Inc., Cupertino, CA) and Terrapin (Garden Grove, CA) can use data transmitted via RDS to special GPS receivers to provide positioning data, with accuracy up to one to five meters. Applications for this technology include IVHS (Intelligent Vehicle Highway System), vehicle and marine navigation, and others.

Coupon Radio—Coupon Radio (New York, NY) is a concept that will utilize RDS to distribute electronic coupons. In its full implementation, an electronic coupon would be transmitted to RDS receivers. The information is stored in memory of specially equipped RDS receivers until the user inserts a magnetic card. The card can then be taken to a retail store and read to obtain product discounts.

Data Broadcasting—Every RDS system purchased by a radio station will have the capability to broadcast data for any desired purpose using the transparent data channels. Projects are already being explored to utilize RDS for advertising kiosks, message and software distribution, pro-

gramming electronic signs, and other data broadcasting applications. RDS stations could even team up with newspapers and broadcast news, classifieds, and financial data right into businesses and homes. Modulation Sciences Inc. (Somerset, NJ) and Milestone Technologies Inc. (Raleigh, NC) have begun providing special hardware and software respectively to facilitate the growth of this aspect of RDS.

Other Applications—Specialized Communications (Bellevue, WA) is using RDS to display both song titles and artists currently playing on Music Billboards. RDS may eventually provide the backbone for the new Emergency Broadcast System (EBS), the IVHS (Intelligent Vehicle High-

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Figure 2. One of Denon's RDS car stereos, the model DCT-950R. This one comes with CD player and a host of RDS tuning features. The face is removable as a theft deterrent and Denon even provides a carrying case for the face unit!

way System), and other applications probably not yet dreamed of.

The Future of Radio in the Information Highway

Many experts predict that RDS is just the beginning of a new role in which radio will become an important means of distributing electronic data. Data transmission using higher speed FM subcarriers (9600 baud and beyond) is not a new technology, but RDS is waking up many to the possibilities of FM radio as a data distribution medium. Look for the future to bring about more

applications where radio stations become critical providers of electronic data. (See the sidebar on Data Broadcasting.)

The following companies contributed valuable information for this article:

Access USA, Delco Electronics, Denon Electronics, Modulation Sciences, Inc., Onkyo, R.E. America.

About The Author: Miles Beam is President of Milestone Technologies Inc., a firm based in Raleigh, NC which specializes in the development of data broadcasting software and applications.

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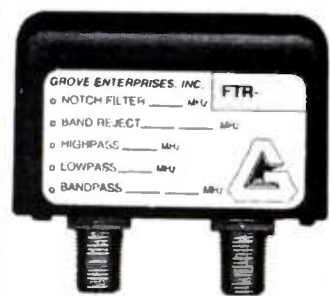
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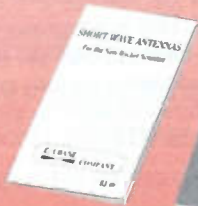
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Selected English Language Broadcasts

Fall—1994

BY GERRY L. DEXTER

There are hundreds of English language broadcasts aired every day on shortwave. This is a representative listing and is not intended to be a complete guide. While every attempt is made at making the list as up-to-date as possible, stations often make changes in their broadcast hours and/or frequencies with little or no advance notice. Some broadcasters air only part of a transmission in English or may run the English segment into the next hour or more. Some stations have altered schedules on weekends. Numbers in parenthesis indicate an English start time that many minutes past the hour. All times are in UTC.

Time	Country	Frequency	Time	Country	Frequency
0000:	BBC	5975, 6005, 6175, 7325, 9590, 9915, 11750, 12095, 15260		Deutsche Welle, Germany	6040, 6085, 9650, 9700, 11865
	RFPI, Costa Rica	7375USB, 9375USB, 13630USB, 15030USB		R. Ukraine Int'l	7195, 7240, 9505, 9685, 9745, 9860, 12030
	Radio Havana Cuba	6010, 9550, 9820, 13700	0200:	RAE, Argentina	11710
	China Radio Int'l	9780, 11715		V of Free China, Taiwan	5950, 9680
	Spanish National Radio	9540		R. Romania Int'l	6155, 9510, 9570, 11830, 11940
	(30) VOIRI, Iran	7100, 9022		R. Cairo, Egypt	9475, 11660
	AWR, Costa Rica	9725, 11870		(30) R. Netherlands	6020, 6165, 9845, 9860, 11655
	R. Canada Int'l	5960, 9755, 11940		(Sun) R. Norway	6120, 7165
	R. Prague, Czech Republic	7345		(30) R. Yugoslavia	9580
	R. Yugoslavia	9580, 11870		(30) R. Portugal	9555, 9570, 9600, 9705, 11870
	(40) R. Nacional Venezuela	9540		(30) R. Budapest, Hungary	9835, 11910, 15220
	R. Pyongyang, N. Korea	11335, 13760, 15130		(45) R. Tirana, Albania	9580, 11840
	(30) R. Netherlands	6020, 6165, 9840			
	(50) RAI, Italy	9750, 11800	0300:	(30) R. Bulgaria	9700, 11700
	R. Ukraine Int'l	7285, 9685, 9860, 11720, 12030, 15180, 15580		R. Educacion, Mexico	6165 (English/Spanish)
0100:	R. Budapest, Hungary	6025, 9835, 11910, 15220		Radio New Zealand	15115
	Radio Moscow	7205, 9505, 9530, 9765, 9815, 11665, 11790, 12050		HRVC, Honduras	4820
	Swiss R. Int'l	6135, 9650, 9885, 12035		Radio Cultural, Guatemala	3300
	(30) R. Tirana, Albania	9580, 11840		TIFC, Costa Rica	5055
	R. Japan	5960, 11860, 15195, 17775, 17810, 17845		R. Austria Int'l	9870
	(30) R. Austria Int'l	9655		China Radio Int'l	9690, 9780, 11715
	R. Korea, S. Korea	7550, 15575		Radio Prague, Czech Republic	5930, 7345, 9810
	HCJB, Ecuador	9745, 11925		(40) V of Greece	9380, 9425
	Slovak R., Slovakia	5930, 7310, 9810		Swiss Radio Int'l	6135, 9650, 9885, 12035
	(30) R. Sweden	9695, 11820		UAE Radio	11945, 13675, 15430
	(30) V of Greece	9380, 9425		R. Japan	11885, 15325
	(30) R. Netherlands	9840, 9860		R. Lesotho	4800
				(30) R. Tirana, Albania	9580, 11840
				R. Ukraine Int'l	7285, 9685, 9860, 11720,



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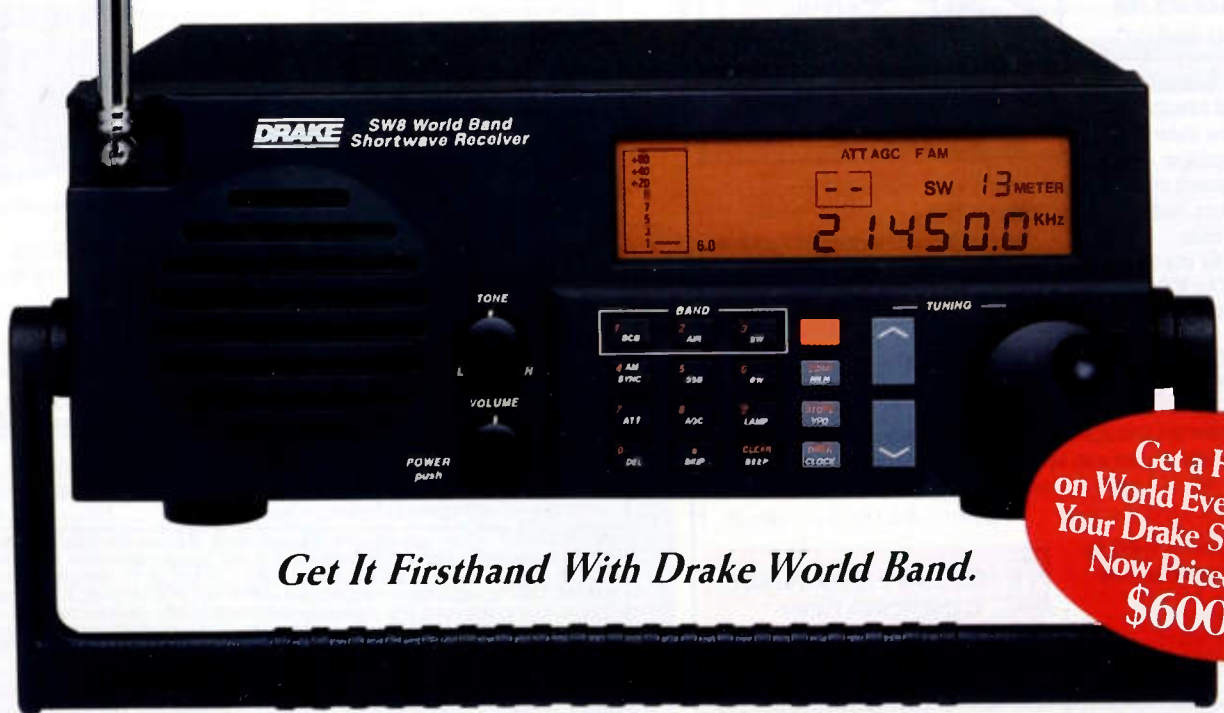
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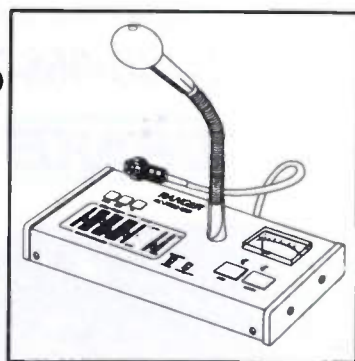
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Time	Country	Frequency	Time	Country	Frequency
		12030, 15180, 15580		(40) TWR, Monaco	7385
0400:	Voice of Turkey	9445		V of Free China, Taiwan	5950
	R. Romania Int'l	6155, 9510, 9570, 11830, 11940		Radio New Zealand	9700
	Voice of America	7265, 7280, 7405, 9575		(15) HCJB, Ecuador	9745, 11925, 21455USB
	R. Botswana	4830, 7255		R. Moscow, Russia	7165, 9890
	R. Prague, Czech Rep.	7345, 9485, 9810, 11990	0800:	Radio Australia	5995, 6020, 6080, 7240, 9580, 9710, 11720, 15240, 17695
	Kol Israel	9435		KNLS, Alaska	7365
	(30) R. Nigeria	4770		SIBC, Solomon Is.	5020, 9545
	HCJB, Ecuador	9745, 15155, 17740, 21455		CFRX, Canada	6070
	(30) R. Tirana, Albania	9580, 11840		(50) TWR, Monaco	9480
0500:	V of Nigeria	7255		(30) R. Austria Int'l	6155, 13730
	(30) R. Austria Int'l	6015, 6155, 13730	0900:	(10) R. Ulanbator, Mongolia	11850, 12015
	V of Nigeria	7255		FEBC, Philippines	11690
	Radio Havana Cuba	9510		R. Vlanderen Int'l, Belgium	5910, 9905, 13675
	CBC Northern Service	9625		Radio One, Singapore	5010, 5052, 11940
	Deutsche Welle, Germany	5960, 9515, 9670, 11705		AWR, Italy	7230
	R. Japan	11725, 11740		KTWR, Guam	15200
	(30) Georgian Radio	11910	1000:	V of Vietnam	9840, 12020, 15010
0600:	Radio Korea, S. Korea	7275, 11945, 15155		(30) Radio Korea	11715
	GBC, Ghana	4915		AWR, Costa Rica	5030, 9725, 13750
	V of the Mediterranean, Malta	9765		Voce of America	5985, 9590, 11915
	Radio Kiribati	9825		Kol Israel	17545
	Vatican Radio	6245, 7250		Radio New Zealand	9700
	(30) R. Vlanderen Int'l, Belgium	9925		FEBC, Philippines	9800, 11685
	R. Canada Int'l	6050, 6150, 9740, 9760, 11905		(30) UAE Radio	13675, 15320, 15425, 21605
	ELWA, Liberia	4760	1100:	R. Singapore	9530
	Channel Africa, S. Africa	5955, 9695		R. Japan	6120, 9610, 15445
	ELWA, Liberia	4770		R. Pyongyang, N. Korea	6576, 9977, 11335
	R. Prague, Czech Rep.	7345, 9505, 11990		HCJB, Ecuador	9745, 11925, 21455
0700:	Wings of Hope, Lebanon	11530		R. Jordan	13655
				NBC, Papua New Guinea	4890

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- Programmable signal strength threshold limits with full 8-bit accuracy allow selective monitoring and logging. Only stations having signal strength less than or greater than or within upper/lower user defined signal strength window limits will be monitored and/or logged.
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- Channel activity status is displayed in real time with activity log function. To determine system loading when first 5 channels are simultaneously busy, "All Trunks Busy" message is logged to disk.
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	(30) R. Vlanderen Int'l, Belgium	15545, 17540		FEBA, Seychelles	9810, 11710, 15330
	AWR, Costa Rica	5030, 9875, 11870		(40) V of Greece	15630, 15650, 17525
	Kol Israel	15640, 17575		R. Sweden	15190, 15240, 21500
	(30) R. Thailand	9655, 11905		Polish Radio	7285, 9525, 11840
1200:	R. Finland Intl	11900, 15400		R. Pyongyang, N. Korea	9325, 9640, 9977, 13785
	R. Australia	6020, 6080, 7240, 9580, 9710, 15630		TWR, Guam	15610
	(30) R. Bangladesh	13620		V of Ethiopia	9560
	R. Tashkent, Uzbekistan	9540, 15220, 17745		Channel Africa, S. Africa	11770
	Radiobras, Brazil	15445		(30) All India Radio	7412, 9850, 10330
	China Radio Int'l	9715, 11660, 15210		KTWR, Guam	15610
	(30) R. France Int'l.	9805, 13325, 13640, 15155, 15195, 17575	1600:	(30) HCJB, Ecuador	17790, 21455USB, 21480
	R. New Zealand	9700		R. France Int'l	6175, 11705, 12015, 15530, 17620, 17795, 17850
	(30) V of Vietnam	9840, 12020, 15010		R. Pakistan	9470, 11570, 13665, 15515, 15555, 17555
	(30) SLBC, Sri Lanka	9720, 15425		BKSAS, Saudi Arabia	9705, 9720
1300:	(30) R. Vlanderen Int'l, Belgium	15445, 17555, 21810		Voice of America	9700, 11920, 12040, 13710, 15255, 15320, 15410, 15445, 17790
	KNLS, Alaska	7355		(30) Vatican Radio	11640, 15090
	(30) R. Tashkent, Uzbekistan	9540, 15220, 17745		UAE Radio	13675, 15320, 15395, 21605
	(30) R. Finland	15400, 17740	1700:	Voice of Azzerbaijan,	15240
	R. France Int'l	11910, 15405, 17650		Georgian Radio	11910
	(35) Voice of Greece	15630, 17520		Channel Africa, S. Africa	11770
	UAE Radio	13675, 15320, 15435, 21605		Kol Israel	7465, 11587, 11675, 15640
1400:	V of Mediterranean, Malta	11925		R. Pakistan	11570, 15550
	RTV Morocco	17595		R. Moscow	9505, 9540, 9880, 11705, 11940, 11960, 12050, 15180, 15290, 15385, 17605, 17735
	R. Canada Int'l	11935, 15315, 15325, 17820		(30) Vatican Radio	11625, 15090, 17730
	(45) R. Ulan Bator, Mongolia	7260, 13780			
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Time	Country	Frequency	Time	Country	Frequency
1800:	RAE, Argentina Radio Kuwait BSKSA, Saudi Arabia (40) Voice of Greece R. Nacional, Brazil (Sun) R. Norway (30) R. Sweden	15345 11990 9705, 9720 15650, 17525 15265 9590, 11860 6065, 9655, 15145		R. Galaxy, Russia R. Yugoslavia (15) Radio Cairo, Egypt (30) Kol Israel (30) R. Vilnius, Lithuania (30) R. Canada Int'l	11880 6100, 9505 9900 7465, 9435, 11587, 11603, 11675, 15640, 15650, 17575 9675, 9710 5995, 7260, 11945, 13650, 13670, 15140, 15325, 17820
1900:	HCJB, Ecuador (30) R. Netherlands (30) VOIRI, Iran Spanish National Radio Kol Israel R. Japan	17490USB, 17790, 21455USB, 21480 17605, 21590 9022, 11965 15375 7465, 9435, 11585, 11603, 11675, 15640, 15650, 17575 9535	2200:	V of Free China R. Canada Int'l (30) R. Yugoslavia R. Bulgaria R. Vilnius, Lithuania (45) R. Yerevan, Armenia R. Ukraine Int'l R. Havana Cuba V of UAE (45) All India Radio	9850, 11915 5960, 9755 11830 11720, 15330 9675, 9710 11790, 11920, 11945 11780, 11950 6180 9770, 11885, 13605 9910, 11715, 15110, 15145
2000:	(Sun) R. Norway Int'l (30) Kol Israel	9590 7465, 9435, 11587, 11603			

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620,
3635,
15325,

2300:	V of Turkey (30) R. Vlanderen Int'l, Belgium R. Pyongyang, N. Korea (30) R. Netherlands (35) V of Greece R. Vilnius, Lithuania R. Canada Int'l (Sun) R. Norway (30) V of Vietnam AWR, Costa Rica R. Pyongyang, N. Korea R. Yerevan, Armenia	9445 9930, 13655 11700, 13650 6020, 6165 9425, 11595, 11645 11750, 12040 5960, 5995, 9755, 13670 6120, 90840, 12020, 15010 5030, 9725, 11870 11700, 13650 9480, 9685, 11970 (partial)
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Time	Country	Frequency	Time	Country	Frequency
	R. Korea, S. Korea	6145, 9650, 9980	1500:	R. Algiers Int'l	11715, 15205, 17745
	(30) R. Vlanderen Int'l, Belgium	15545, 17540		FEBA, Seychelles	9810, 11710, 15330
	AWR, Costa Rica	5030, 9875, 11870		(40) V of Greece	15630, 15650, 17525
	Kol Israel	15640, 17575		R. Sweden	15190, 15240, 21500
	(30) R. Thailand	9655, 11905		Polish Radio	7285, 9525, 11840
1200:	R. Finland Intl	11900, 15400		R. Pyongyang, N. Korea	9325, 9640, 9977, 13785
	R. Australia	6020, 6080, 7240, 9580, 9710, 15630		TWR, Guam	15610
	(30) R. Bangladesh	13620		V of Ethiopia	9560
	R. Tashkent, Uzbekistan	9540, 15220, 17745		Channel Africa, S. Africa	11770
	Radiobras, Brazil	15445		(30) All India Radio	7412, 9850, 10330
	China Radio Int'l	9715, 11660, 15210	1600:	KTWR, Guam	15610
	(30) R. France Int'l.	9805, 13325, 13640, 15155, 15195, 17575		(30) HCJB, Ecuador	17790, 21455USB, 21480
	R. New Zealand	9700		R. France Int'l	6175, 11705, 12015, 15530, 17620, 17795, 17850
	(30) V of Vietnam	9840, 12020, 15010		R. Pakistan	9470, 11570, 13665, 15515, 15555, 17555
	(30) SLBC, Sri Lanka	9720, 15425		BSKSA, Saudi Arabia	9705, 9720
1300:	(30) R. Vlanderen Int'l, Belgium	15445, 17555, 21810		Voice of America	9700, 11920, 12040, 13710, 15255, 15320.
	KNLS, Alaska	7355	(30)		
	(30) R. Tashkent, Uzbekistan	9540, 15220, 17745	UAI		
	(30) R. Finland	15400, 17740			
	R. France Int'l	11910, 15405, 17650	1700:		
	(35) Voice of Greece	15630, 17520	Voi		
	UAE Radio	13675, 15320, 15435, 21605	Gec		
1400:	V of Mediterranean, Malta	11925	Cha		
	RTV Morocco	17595	Kol		
	R. Canada Int'l	11935, 15315, 15325, 17820	R. F		
	(45) R. Ulan Bator, Mongolia	7260, 13780	R. M		
	FEBC, Philippines	11995	(30)		
	R. Jordan	9560			
	All India Radio	7412, 9950			

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1800:	RAE, Argentina Radio Kuwait BSKSA, Saudi Arabia (40) Voice of Greece R. Nacional, Brazil (Sun) R. Norway (30) R. Sweden	15345 11990 9705, 9720 15650, 17525 15265 9590, 11860 6065, 9655, 15145		R. Galaxy, Russia R. Yugoslavia (15) Radio Cairo, Egypt (30) Kol Israel (30) R. Vilnius, Lithuania (30) R. Canada Int'l	11880 6100, 9505 9900 7465, 9435, 11587, 11603, 11675, 15640, 15650, 17575 9675, 9710 5995, 7260, 11945, 13650, 13670, 15140, 15325, 17820
1900:	HCJB, Ecuador (30) R. Netherlands (30) VOIRI, Iran Spanish National Radio Kol Israel R. Japan	17490USB, 17790, 21455USB, 21480 17605, 21590 9022, 11965 15375 7465, 9435, 11585, 11603, 11675, 15640, 15650, 17575 9535	2200:	V of Free China R. Canada Int'l (30) R. Yugoslavia R. Bulgaria R. Vilnius, Lithuania (45) R. Yerevan, Armenia R. Ukraine Int'l R. Havana Cuba V of UAE (45) All India Radio	9850, 11915 5960, 9755 11830 11720, 15330 9675, 9710 11790, 11920, 11945 11780, 11950 6180 9770, 11885, 13605 9910, 11715, 15110, 15145
2000:	(Sun) R. Norway Int'l (30) Kol Israel (05) R. Damascus, Syria (45) All India Radio (30) R. Cairo, Egypt Swiss Radio Int'l R. Kuwait (30) R. Canada Int'l	9590 7465, 9435, 11587, 11603 12085, 15095 9910, 9950, 11620, 15265 15375 9885, 12035, 13635, 15505 13620 13650, 13670 15325, 17820,	2300:	V of Turkey (30) R. Vlanderen Int'l, Belgium R. Pyongyang, N. Korea (30) R. Netherlands (35) V of Greece R. Vilnius, Lithuania R. Canada Int'l (Sun) R. Norway (30) V of Vietnam AWR, Costa Rica R. Pyongyang, N. Korea R. Yerevan, Armenia	9445 9930, 13655 11700, 13650 6020, 6165 9425, 11595, 11645 11750, 12040 5960, 5995, 9755, 13670 6120, 90840, 12020, 15010 5030, 9725, 11870 11700, 13650 9480, 9685, 11970 (partial)
2100:	(30) R. Dniestr Int'l, Moldavia (10) R. Damascus, Syria Radio Havana Cuba (Sun) Radio Norway	15290 12085, 15095 17760 15165			

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Tune in on Yesterday

Radio, as it Was in an Earlier Era

BY ALICE BRANNIGAN

Often, we examine the plight of scrappy little AM stations that fought their way through the years and blossomed into large and highly successful operations. Broadcasting doesn't guarantee success. There have been more stations go up on the rocks during the past 72 years than those that have sailed off into horizons of prosperity. This includes those that tried very hard.

In April of 1947, Willard M. Gleeson, President of the Broadcasting Corp. of America (BCA), received a permit to construct a 250-watt AM station on 1450 kHz at Blythe, Calif., a small community on the Colorado River. BCA owned KPRO in Riverside, KROP in Brawley, and KREO in Indio.

A year later, the Blythe station went on the air as KUCB, from its new studio-transmitter building two miles west of town on U.S. Route 60. At the rear of the building, there was a 170-foot self-supported antenna tower. Programming included music, news, and sports.

In August of 1949, the call letters were changed to KYOR. That was a month before

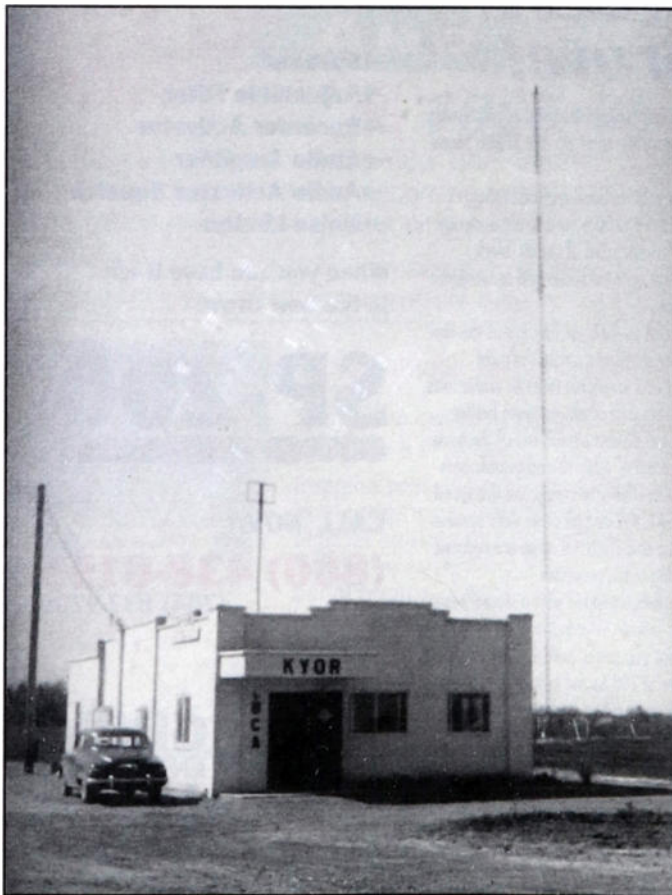
the tower was blown down and took the station off the air, incurring \$7,000 in losses. The tower was replaced by a more substantial guyed radiator located in an open field to the west of the studio building. In 1950, KYOR became an affiliate of the Liberty Broadcasting System network. Two years later LBS folded. KYOR then joined the American Broadcasting Company radio network.

Despite good efforts to keep KYOR and the other stations going, in December of 1952, BCA went bankrupt. The FCC granted an involuntary transfer of the BCA stations to William B. Ross, Trustee in Bankruptcy. In 1954, the stations were transferred to Fred E. Carr, Trustee in Bankruptcy. He became KYOR's President, which continued to operate during the financial difficulties.

In February 1957, BCA sold KYOR and its other three stations to the Imperial Broadcasting System, of Riverside, for a total of \$533,850. In 1959, KYOR dropped its ABC network affiliation.



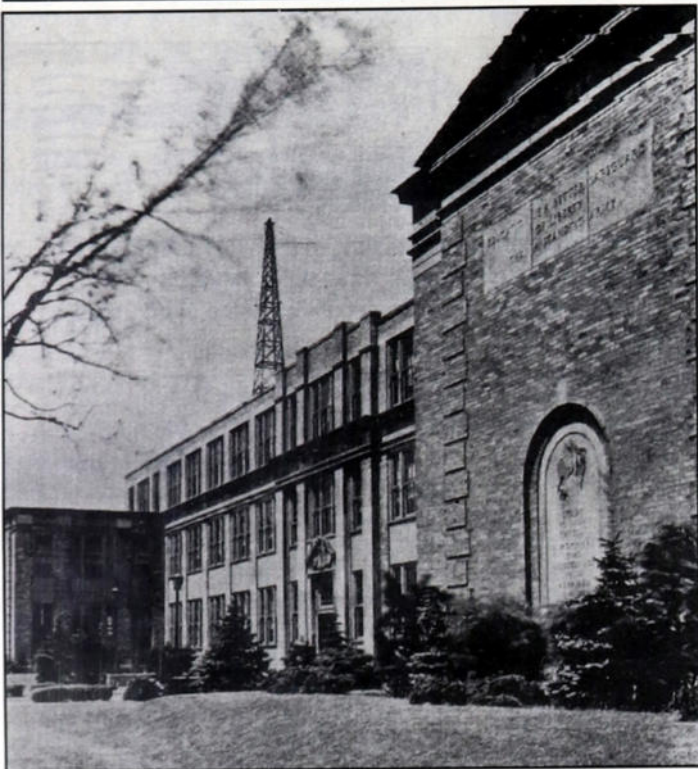
Existing remains of the concrete base that once supported the KYOR tower at the abandoned site. (Photo provided by Jan Lowry of Broadcast Pro-File, Hollywood, Calif.)



← The original KJMB studio/transmitter building. This is as it looked about 1949 when the station was known as KYOR. (Willard L. Gleeson photo provided by Jan Lowry of Broadcast Pro-File, Hollywood, Calif.)

The old KJMB/KYOR building, as it appears in 1994. (Photo by Jan Lowry, of Broadcast Pro-File, Hollywood, Calif.) ↓





One of the twin WSVS towers that once existed on the roof of Seneca Vocational High School, Buffalo, N.Y. (Courtesy Marvin Hess, Elma, N.Y.)



The Students at Seneca Vocational High School received hands-on experience in radio servicing. (Courtesy Marvin Hess, Elma, N.Y.)

In 1961, the station was sold to KYOR, Inc., with Tolbert Foster, President. The purchase price was not disclosed. At that time, KYOR joined the Mutual Broadcasting System.

By mid-1964, Blythe Broadcasting, Inc., Robert Roddy, President, had agreed to purchase the station for \$90,000. He became the station's General Manager, and obtained a construction permit for new facilities. This called for moving the studio and transmitter to a site north of Chanslor Way and west of Seventh Blvd., an increase in daytime power to 1 kW, and the construction of a three-tower directional antenna array for daytime use. Nights would remain at 250 watts, non-directional.

The station relocated and increased its power in 1967. A modern one-story building was built, and the antenna array installed in the adjacent field at the dead-end of North Fourth Street.

In November of 1976, KYOR was sold for \$335,000 to Blythe Radio, Inc., Robert R. Hull, President. In 1977, the station started broadcasting "The Entertainers," a syndicated Middle-of-the-Road (MOR) music format. In 1979, KYOR affiliated with the CBS Radio Network. In 1980, the MOR was discontinued as KYOR replaced it with a country music format.

In 1981, Dr. James S. Mayson, a physician from Riverside, bought KYOR for \$500,000. That year, the station's affiliation with CBS ended, and KYOR joined the Mutual Network. In that year, KYOR

began devoting 18 hours each week to Spanish language programming along with its country music, and 10 hours of information oriented towards farmers.

In June of 1983, KYOR changed its call letters to KJMB, and in 1987 the station increased its night power from 250 watts to 1 kW, non-directional. In 1987, KJMB switched to an adult contemporary music format, and continued frequent Spanish language programming.

KJMB's AM career ended in 1991 when the station went dark because of economic reasons brought about by declining audience size. Blythe Radio Inc., the licensee, retained its license for possible resumption of AM service at a later date. KJMB-FM/100.3, which was activated in 1975, picked up the KJMB program schedule in 1991, and has been airing it ever since.

Willard L. Gleeson, who founded the Blythe station in 1947, later went on to operate station KICO, Calexico, Calif. He remained there until his passing in 1989 at an advanced age.

We are most fortunate in having a photo of the original KJMB site as it looked around 1949. The photo was taken Mr. Willard L. Gleeson himself, and provided to us by Jan Lowry of Broadcast Pro-File, Hollywood, Calif.

On a recent trip to Blythe, Jan Lowry located the old structure (now at a location known as 13145 West Hobsonway), and took a few photos. The empty front portion still has sound tiles on the ceiling and

the studio window is still there. The rear section appears to be occupied by squatters. The tower's concrete base still exists.

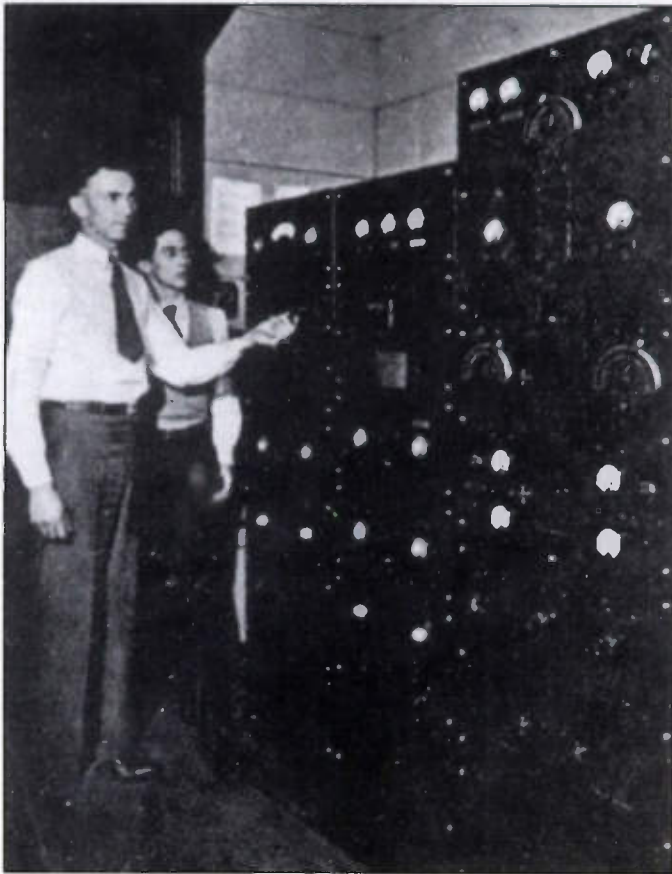
Broadcast Pro-File, provided the photos of KYOR. Our KYOR information was condensed from the BP-F lengthy research report on the station, prepared for our use. For a reasonable fee, this company professionally researches and prepares excellent detailed histories of American AM, FM, and TV broadcasters (past and present). They have an interesting catalog, which they'll send for \$1. Write to Broadcast Pro-File, P.O. Box 902, Hollywood, CA 90078-0982.

School Station

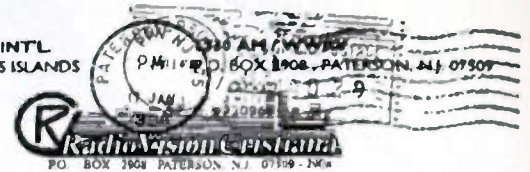
Marvin Hess, W2WKU, of Elma, N.Y., sent us recollections of WSVS, the student radio station of Seneca Vocational High School, Buffalo, N.Y. Marvin attended this all boys' school, and graduated in 1937. Marvin wrote that he checked with the school about the station. They had nothing about it in their files, and knew nothing of the disposition of the equipment.

We know that the student-operated station went on the air in the 1920's, and that at some point it was operating on 1370 kHz with a DeForest 50-watt transmitter. WSVS was eventually forced off the air by its time-share station, WBNY.

WSVS was operated for the benefit of students hoping to enter careers in radio broadcasting, servicing, and communica-



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Recent QSL from WWRV/1330 doesn't specify the location of its transmitter. It's not at the old site of the former WBBR/WPOW/WNYM operations on 1330 kHz in New York City. (Courtesy Jim Douglass, New York, N.Y.)

The WSVS broadcast facilities were operated by students, under supervision of the faculty of Seneca Vocational High School (Courtesy Marvin Hess, Elma, N.Y.)

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tions. Senior year students were allowed to work at the station. Lower grade students learned how to construct crystal sets, repair radio equipment, and train for ham licenses. The school's ham station was licensed as W8YP, and was open to licensed students.

The students' repair services were so good that the Buffalo Police Dept. even brought their mobile radio equipment there to be fixed.

Marvin remembered that WSVS had to sign off daily at 2 p.m., because it shared time with WBNY. Problems arose when the clocks at the two stations were off by a few minutes, because then listeners would be treated to two stations operating simultaneously. Marvin thinks that WBNY's argument in getting WSVS off the air had something to do with telling the FCC that WSVS played too many records.

In 1984, Marvin returned to visit the school. He noticed that the twin WSVS towers were gone from the roof. He went around to the side door that had been used for WSVS. It was locked, and the glass was boarded up. The front door was also locked, so he rang the bell. He was let in and learned that the school had become co-educational. He was also surprised at the loud din in the halls. When he was a student there, complete silence in the halls had been demanded at all times.

Catching Up

In June we had a photo of one of the two mini-fortress communications stations

constructed during the 1930's by the Indiana State Police. We wondered about the need for such heavily fortified bastions, and one reader has stepped forward with a good answer.

Susan J. Wilden, who hails from Columbus, Ind., doesn't know if those structures still exist, however she does know there's a bit of history attached to the facility at Seymour, Ind.

From speaking to those who seem to be in the know, Susan is under the impression that homegrown gunslinger and bank robber John Dillinger probably inspired the decision to construct the fortresses. In fact, during the dangerous 1930's, Goshen, Ind., had a special fortified booth placed at the intersection of Main Street and Lincoln Avenue because two banks were (and still are) located there.

In the May issue, we discussed the original WBBR/1330, in New York, a religious station, and how it was later sold and became WPOW. That station was sold to become WNYM, and, in 1989, the 1330 spot on New York City's dial was sold again to new owners, Radio Vision Cristiana. They dubbed the station WWRV.

Not long ago, Jim Douglass, of New York City, drove out to the old WBBR/WPOW/WNYM transmitting site on Woodrow Road, Staten Island, to see the present status of this location. The WWRV QSL card mentions the use of three 132-foot towers, but doesn't specify where they are. Wherever they may be, they are no

longer at the former WBBR/WPOW/WNYM site, as this location is now occupied by split-level houses.

Early Military Aviation

The first operation of radio from a naval aircraft took place on July 26, 1912, at the U.S. Naval Academy, Annapolis, Md. The pilot/radio operator was Ens. Charles H. Maddox. He sent and received voice messages over a range of three nautical miles while flying at an altitude of 300 feet. Messages were exchanged with the torpedo boat USS *Stringham*. In order to keep out external noises, Maddox used a helmet with built-in headphones. It was a prototype of standard pilot headgear with similar arrangements used for many years afterwards.

In 1916, Lt. Cdr. S.C. Hooper, USN, realizing the importance of the application of radio in aircraft, urged the establishment of a laboratory dedicated to this work. Such a facility was started soon after at the Naval Air Station, Pensacola, Fla.

The whole story of Maddox' flight, and Hooper's role in the advancement of early naval aviation communications was given at length in *Proceedings of the Institute of Radio Engineers*, February, 1920.

Army officials developing aircraft radio installations wrestled with antenna design considerations. They were at first confounded by not having the old reliable ground connection. The radiating circuit

would need to comprise both the antenna and counterpoise systems.

Among the many experimental types tried on the bi-planes were fixed parallel wires on top surface of the upper wings and bottom surface of lower wings. Then there were fixed wires strung between points on the wings and tail; single trailing wires, unweighted and of various lengths; single trailing wires, weighted, with reels for winding and unwinding; double trailing wires, both weighted and unweighted; and closed loops in various positions.

Short fixed antennas were not good radiators, and loops were found to be too directional. In this latter respect, trailing antennas also had directional tendencies. It was observed that better signals were received by ground stations ahead of the plane than those stations to the sides, the rear, or directly below. Those characteristics were deemed advantageous. Double trailing antennas provided equally good results as longer single trailing antennas. Therefore, double trailing antennas were adopted by the U.S. Army, and in general use by about 1920.

We will be flying home for our turkey dinner this month, and hope you'll be doing the same. We always appreciate your help here, and look forward to your old time radio and wireless QSL's (originals or good repros), old station photos or picture postcards, station directories, memories, anecdotes, ideas, and questions.

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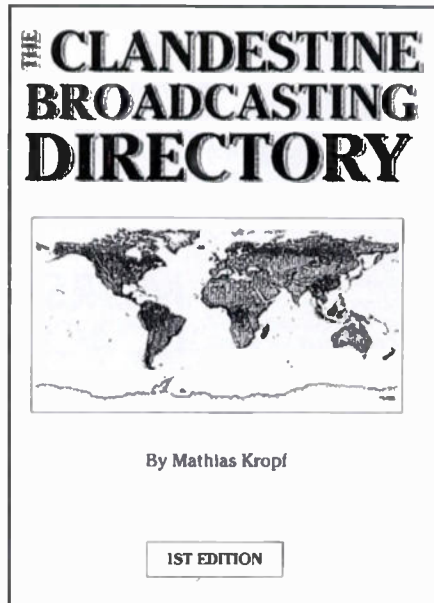
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Clandestines on Tap

Clandestine broadcasters come in several guises. Some are stations operated from secret locations by political dissidents, or seeking to undermine or overthrow spe-



cific governments. Others appear to be the same, but instead are actually sponsored by the intelligence service of a hostile neighboring nation.

For the past 50 years, these mysterious stations have been directed at countries from Afghanistan to Zimbabwe by groups having political persuasions representing the spectrum from communism to fascism, and everything between.

The present year is no exception. Cuba, Korea, Iran, Iraq, Haiti, Guatemala, Angola, Kashmir, Afghanistan, Somalia, Colombia, Sudan, and Saudi Arabia are among the nations that are being targeted by clandestine broadcasters. Some speak for revolutionary groups. Some are the work of enemy governments. All are unlicensed and operated from unspecified locations.

A new book, *The Clandestine Broadcasting Directory*, by Mathias Kropf, takes a DX chaser's close look at these voices. First, he sorts the current crop of active stations according to their operating frequencies. Next, they are grouped according to their operating skeds. Then, Kropf provides what information (if any) is known or believed about the various stations. This includes the name (and address) of the group supporting the station, the station's starting date, plus general information.

Guidance is provided with a rating indicating how easy or difficult it is to hear the different medium wave and shortwave stations. There are also close-up examinations

of very interesting clandestine areas such as East Africa and the Korean peninsula.

The author writes a column about clandestine broadcasters in the publication, *The Danish Shortwave Clubs International*. He is extremely knowledgeable. His useful book gets right to the point with a lot of hard data, and a minimum of padding.

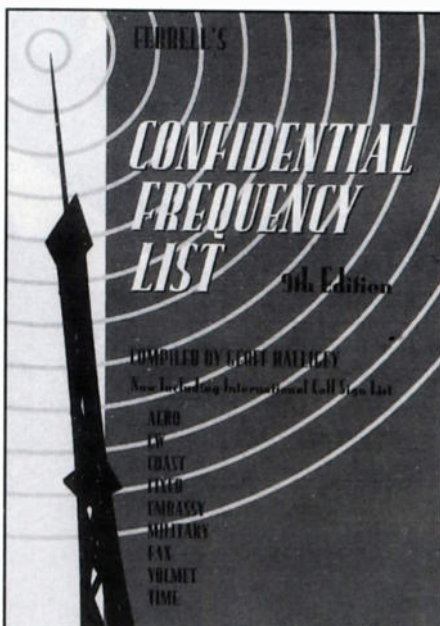
The Clandestine Broadcasting Directory is \$12.95, plus \$2 for Book Rate mailing, from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. Credit card orders may be phoned to 1-800-248-0579.

Ute Directory Updated

Ferrell's Confidential Frequency List, 9th Edition, compiled by Geoff Halligey, has arrived. Here's a perennial favorite that utility monitors have come to rely upon.

In its 9th Edition, the famous CFL (as it has become known to many) is a chunky 386-pager, with metal spiral binding to make it lie flat while it's being used. Essentially, this is a listing of thousands of worldwide shortwave non-broadcast stations utilizing voice (SSB and AM) and non-voice (CW, FAX, RTTY, ASCII, ARQ, and many digital) modes.

These special purpose stations transmit aeronautical, coastal maritime, point-to-point, embassy, military, weather, and standard time signals. Although not intended for entertainment, or general public reception, they have always been the subject of intense interest and scrutiny by monitoring hobbyists. This is evidenced by the popularity by our magazine's monthly *Communications Confidential* column, which is dedicated to these utility ("ute") stations.



The main portion of the CFL consists of a by-frequency listing, covering the range of 1600 kHz to 30 MHz. Each listing indicates mode, call letters, location, and type of station. Many listings also offer relevant additional information such as skeds, owner, or RTTY shift/speed. There is also a by-callsign cross-index section printed on distinctive green pages, indicating the frequencies used for each station.

Separate sections even show maritime service channel designation numbers, number stations, etc., as well as charts of NAVAREA, ICAO areas, and world time zones.

Ferrell's Confidential List has long been popular because it is accurate, and compiled with the idea that North American ute monitoring enthusiasts are to be its primary users. For North Americans, The 9th Edition of the CFL is an excellent reservoir of information, and should be considered a basic information source on every ute monitor's reference shelf.

Ferrell's Confidential Frequency List, 9th Edition, is \$22.95, plus \$4 shipping (\$15 outside the USA), from Listening In, P.O. Box 123, Park Ridge, NJ 07656. It is also available from many leading suppliers of communications books and supplies.

Stuck on the Entrance Ramp to the Information Superhighway?

Modems, which can be outboard accessories or built into computers, are becoming a part of our daily lives. Hobbyists use them to access their favorite bulletin board systems (BBS), or operate their own. Modems allow 20-million PC owners to use the facilities of Internet. Many corporate employees now work at home ("telecommute") via modems which allow them to go on-line with their company's computers. Unfortunately, most people don't know how to use this powerful tool, or don't realize how to utilize its full potentials.

In his book, *The Electronic Gateway: Computer Communications Made Easy*, David Kruchowski solves the problem by removing the mysteries of the modem. Written in plain language that anybody should be able to easily understand, Dave explains every aspect of getting the most from a modem.

He tells how they work, and suggests how to select terminal software. He explains the terminology used, how to get around in the sometimes confusing world of BBS, and BBS etiquette. You'll learn what to expect once you're on-line, and how to sign on for the first time, send and receive e-mail, and more.

Dave offers close-up views and person-

THE ELECTRONIC GATEWAY

COMPUTER COMMUNICATIONS MADE EASY

BY DAVID T. KRUCHOWSKI

al opinions of Internet, and major on-line services, including CompuServe, Prodigy, GENie, America Online, and DELPHI. Then he goes on to discuss some of the lesser-knowns from job hunting to adults-only, plus ones such as Book Stacks Unlimited and CD-Connection.

This isn't all just for the beginner. It also covers more advanced subjects such as using an off-line mail reader, setting up scripts and macros to expedite online procedures, and capturing online text.

There are 11 chapters. Each chapter ends with a mini-glossary, reviewing terms used in that chapter. A master glossary is in the back of the book. An extensive bibliography is also provided.

This is a useful and well-written book. It clearly shows how to use a personal computer and modem to hook up to, get going in, and get maximum benefit from information sources, shopping services, reservation services, e-mail service, BBS, and many other networks from coast-to-coast, as well as overseas.

The Electronic Gateway, by David T. Kruchowski, is \$24.95, plus \$4 shipping and handling (Canada \$5). NYS residents please add \$2.46 tax. Order it from CRB Research Books, Inc., P.O. Box 56, Com-mack, NY 11725. VISA/MC welcomed. Phone orders: 1-800-656-0056. Canada/AK/HI orders: (516) 543-9169. FAX orders: (516) 543-7486.

In Addition...

FAX/USA is the new edition of a 455-page directory listing FAX numbers, phone numbers, addresses, and ZIP codes, for 85,000 of America's largest and most frequently called corporations, organizations, and institutions. Listings are alphabetical, according to company name, with some companies listed several times under the different names they use, or under popularly used variant spellings or initials. Some

listings indicate the specific department where the FAX is located. This excellent book is \$58 from Omnigraphics, Inc., Penobscot Bldg., Detroit, MI 48226. Phone: 1-800-234-1340. FAX (313) 961-1383.

Tropenbandliste TBL translates from German into "Tropical Band List." This is a 65-page staple-bound directory containing 1,400 entries of shortwave broadcasting stations operating below 7 MHz. Part A is sorted by frequency, according to continent (generally Europe, Africa, Pacific/

East, Americas). Part B shows a sort by nation, showing output power and frequency of each station. Additional information given relates to skeds and brief other comments (which are in the German language). Even if you don't read German, the information here should be readily useful to anybody interested in monitoring the Tropical DX Band. This publication is US \$20 (by airmail) from Willi H. Passmann, DJ6JZ, Oberhausener Str. 100, 45476 Mulheim-Ruhr, Germany. He will accept checks. ■

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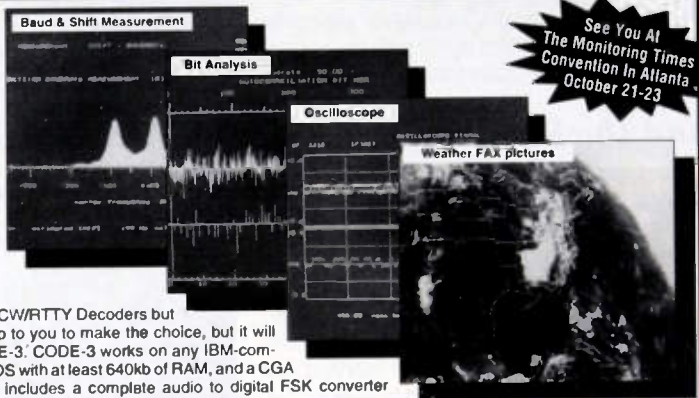
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Tomorrow's Beepers Today

College Students Try Their Hands in Motorola's 'Pager of the Future' Contest

BY DEENA MARIE AMATO, ASSOCIATE EDITOR

As the saying goes, "America's youth is the future of the country." This was proven recently when five college students were heralded as the winners of Motorola's nationwide "Pager of the Future" contest.

The competition, sponsored by the Pan American Subscriber Paging Division of Motorola, Inc. earlier this year, was open to all college and university students registered in industrial design classes throughout the United States. Motorola invited coeds to create paging concepts and products predicting how they think beepers will appear in the next century.

Over 80 students jumped at the challenge, and five rang triumphant, claiming first, second, and third place merits, as well as two honorable mentions.

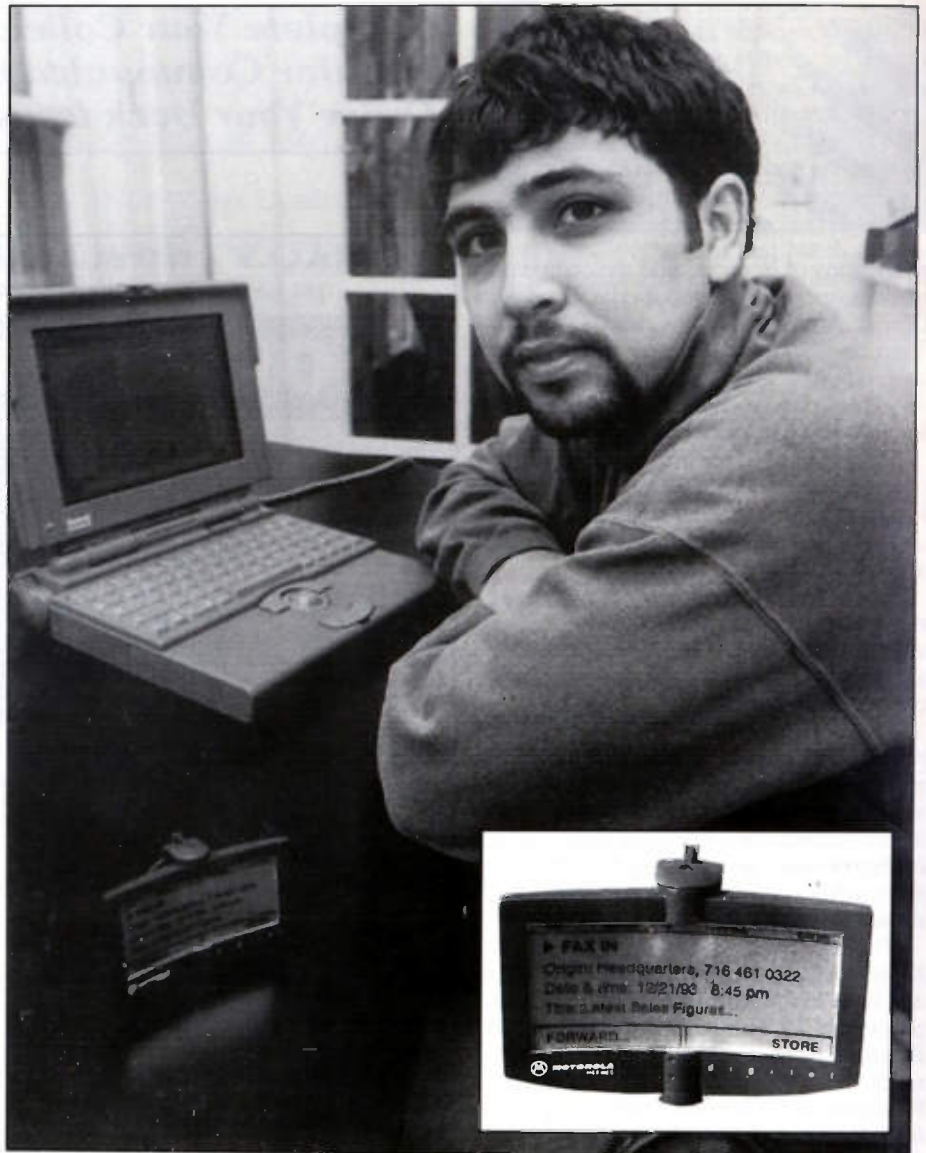
And the Winners are...

First place winner, Mehmet Ergelen, a student at Rochester Institute of Technology, in Rochester, New York, designed a curved pager that fits into the palm of a hand. This tiny beeper, however, is the key-component in an integrated communications network. His project, dubbed "Hermes"—the Greek God who served as messenger to the other Gods—gives its owner access to receive computer messages without being at the computer. "Hermes" is a pocket-size, portable mailbox allowing personal computers, laptops, and even notebook computers to send and receive E-mail, FAX, telex, and voice-mail, in addition to usual broadcast messages.

Its key feature is that it can be clipped to a belt, or set on a desk—the clip converts to a stand. "Hermes," based on the biotechnological relationship between man and machine, also features a large, touch-sensitive, interactive screen, audio speakers for synthesized voice, and an internal 9-volt Nicd battery.

Howard Murray Montgomery, a student at Cranbrook Academy of Art, in Bloomfield, Michigan, earned the second place title with a high-density polypropylene (thermoplastic) beeper covered in leather.

Howard's "Pager Project," which is a triangular-shaped pager functioning on miniature flat cell batteries, can be kept flat or unfolded. If opened, three separate touch-sensitive surfaces are revealed. The first triangle holds a small, built-in telephone calling card with six-number mem-



Mehmet Ergelen's first place project "Hermes" helps open the door to his future as it enabled him to intern at Motorola's design facility—one of the many prizes he earned in the 'Pager of the Future' competition.

ory and a magnetic strip for credit card telephones; the second triangle contains a soft-touch LDS screen, and the third has the pager interface.

When kept flat, the "Pager Project" clips onto a belt or pocket, and it can be carried in anything from a wallet or checkbook to a briefcase.

Andy Dehus, a student at Columbus Col-

lege of Art and Design, in Columbus, Ohio, rang in at third place with his "Small Talk Child's Pager," a beeper for children between three and ten years of age.

The waterproof yellow, red, and blue pager is a parent's dream as it eliminates the need for the child to dial a telephone number and fish for change when calling home. The pager has a glowing "house but-



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AOR AR3030 \$849

General Coverage Receiver

The AR3030 boasts a wide frequency coverage from 30 kHz to 30 MHz and all mode option "as standard": AM, S.A.M (synchronous), NFM, USB, LSB, CW, & FAX. Tuning is via a silky smooth rotary tuning knob with a minimum step of 5 Hz (selectable for faster / slower tuning), there are two VFOs and dial lock to prevent accidental loss of frequency while listening. It also has a number of unique facilities to offer. In particular the BFO is switchable on USB/LSB/CW and FAX modes. The AR3030 has a 66mm 3 watt built-in front facing speaker thanks to clever chassis design which has succeeded in producing crisp, clear audio through a deceptively small front speaker grille. There are 100 memory channels which allow data to be transferred into and out of memory for greatest flexibility. Memory channels retain frequency, mode, bandwidth, AGC, attenuator and tone etc. A large high contrast green backlit LCD presents frequency up to the nearest 10 Hz (not 1 kHz as some receivers) for accurate tuning. All relevant information is displayed on the LCD. Experience the AOR AR3030, order yours today.



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Grundig YB-400

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The new Yacht Boy 400 was hailed as "the best compact shortwave portable tested" by the 1994



Passport to World Band Radio. It covers AM, FM stereo, and shortwave from 1.6 to 30 MHz continuously. 40 randomly programmable memory presets allow for quick access to favorite stations. The multi-function LCD display shows simultaneous display of time, frequency, band, automatic turn-on and sleep timer. A full feature clock, alarm and timer shows time in 24 hour format and even has a sleep timer programmable in 15 minute increments. Receiver performance is where this one really shines however. It features sensitivity and selectivity that no other receiver in this price range can match. Get what everyone's been talking about - the new YB-400!



Full 800 MHz Coverage!

AOR AR3000A

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\$1099

100 kHz all the way up to 2036 MHz (no gaps). Listen on any mode including NFM, WFM, AM, USB, LSB and CW. 400 memory channels, search and scan speed is an unprecedented 50 increments/second. RS-232 port is provided to enable full remote control. Includes telescopic whip (BNC antenna input) and DC lead. Powerful 1.2 Watts of clear audio.



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Sony ICF-SW7600G \$189

World Band Receiver

Sony brings together some of their most innovative features in this outstanding, low cost receiver. Now, for the first time, the remarkable synchronous detection feature is available in a receiver for less than \$200! Not only do you get fade-free shortwave reception, but also SSB and FM stereo! Covers 150 kHz to 30 MHz continuously as well as AM and FM broadcast. You can tune via direct entry from the keypad or the up-down control. The receiver performance is typical Sony quality with dual conversion



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superheterodyne circuitry. Tuning is in 1 kHz steps with a large LCD display. Includes 22 station presets, a built-in clock with sleep timer and a large 3" speaker. Comes complete with compact antenna and guide book. One of the most exciting new receivers in years!

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AOR AR1000XLT

1000 Channel Continuous Coverage Receiver

\$419

The latest version of the famous AR1000 series scanners, one of the most popular scanners on the market. This top quality, feature packed portable allows the user to tune into all the action with continuous coverage of .5 to 1300 MHz (no gaps). Features include: lock-out search and scan, cigarette lighter plug cord, belt clip, case, flex antenna, and earplug. Covers AM and W/N FM. Operates from 12 VDC (AC adapter included) or included NiCad pack. VFO knob or keypad tuning and 1000 channels. 6.7" x 1.4" x 2.6", 10 oz.



Sony ICF-SW10 \$499.50

World Band Receiver

For the first time in shortwave history, a shortwave radio is available for under \$50 that actually works! When we first received this radio for evaluation, we assumed it would be like every other radio in its class and offer mediocre at best performance. We were pleasantly shocked when we discovered it offered outstanding selectivity and sensitivity. This radio is great as a travel radio, a starter radio, gift, or just for people that prefer an analog dial. Covers 9 shortwave bands, FM STEREO, and AM broadcast.

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Bearcat SC150 Y/B SportCat

100 Channel Scanner Designed for Sports Enthusiasts

The SportCat is designed specifically for sporting events, allowing you to go from one channel to the next with just a touch of a button. You can go store up to 10 custom frequencies and for added convenience, there are also 10 corresponding channel identifiers. Features include 100 channels in 12 bands with 10 banks, preprogrammed band search, 10 priority channels, channel lockout and one touch weather. Turboscan lets you scan 100 channels per second and Turbosearch searches 300 steps per second. The unique data skip allows you to skip over unwanted data transmissions and substantially reduces birdies.

Memory backup retains frequencies up to 3 days without batteries. The supplied rechargeable NiCad battery pack will supply up to 12 hours of use in the closed squelch position. Includes charger/AC adapter, rubber antenna, beltclip and earphone. Available in either black (SC150B) or striking yellow (SC150Y). 2.5" x 1.7" x 6".

\$199



JIM M51 Scanner Pre-Amp

\$79

The M51 is the perfect companion for your handheld scanner or receiver. It features 20 dB gain over a wide 24 to 2150 MHz frequency coverage. GaAs FET design insures low-noise gain over the entire spectrum. Just hook up the M51 to your handheld scanner, hook the antenna to the M51 and go! Uses 2 AA batteries, BNC connectors.



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This great little antenna gives excellent gain on transmit through 950 MHz. Where it really shines though, is receive. Use it on your handheld scanner or receiver for much better reception than the factory antenna. 15" long.



Icom IC-R-71A Communications Receiver

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Tucker TSA-600

Glass-Mount Scanner Antenna

\$29⁹⁵

This glass-mount antenna is perfect for those of you that do not want to drill a hole or place a magnet mount on your vehicle. It installs on both sides of your window glass with no

need to drill any holes. The signal is transferred through the glass, making installation a snap. It covers the entire scanner spectrum of 30 to 1200 MHz and is only 22" high. Comes complete with 17' of RG-58 coax and BNC connector. Of course, it comes with our 1 year warranty behind it and our SatisfactionPlus guarantee.



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ton," which alerts the child to call Mom or Dad. The youth holds the circular end of the beeper—which conceals speakers—up to the microphone end of a telephone receiver, then after pressing the house button, the pager automatically dials for the child.

The beeper features a coin holder to store four quarters, and a key ring so it can easily be attached to a key chain or belt loop.

The first of two honorable mentions is Aaron DeJule. He is a student at Illinois Institute of Technology, in Chicago, Illinois, and the designer of a one-button pager named, "The Messenger." The contoured pager has a screen, and a button that is pressed once to display a message, twice to delete it. Each single click of the button scrolls to the next message. A fastener allows the beeper to be worn anywhere.

Leiff Huff, a student at Cranbrook Academy of Art in Bloomfield, Michigan, received honorable mention for his "Pendant Pager." The electronic element can be separated from its base, allowing it to be worn as a "jewel" pendant or pin. According to Motorola representatives, "The 'Pendant Pager' turns the beeper into more of a personal possession."

It was not mandatory, however some students, specifically most winners, constructed actual functioning pagers. "The beepers were originals made by [the winners] all on their own starting with their ideas and designs, down to the materials and construction," said Sharon Fenster, spokesperson for Motorola.

The Basics

All entries were judged on four criteria including the creation's ability to adapt to situations and conditions; the degree of difficulty to construct the product; design creativity; and the product's ease of use.

According to Sharon, the students were asked to create and delve into any aspect of the paging world through their beeper's concept, based on the given criteria.

The panel of judges invited by Motorola to evaluate the projects was a regular "Who's Who" in the communications industry including Richard Toth, Director of Industrial Design and Human Factors Engineering, and Rob Pollack, Director of Marketing, both of Motorola's Pan American Subscriber Paging Division; Rudy Kroplopp, Director of Industrial Design, Motorola's Cellular Subscriber Group; Joel Fuller, Director of Design, Pinkhaus Design Corporation; and John Krefeldt, Human Factor Professor, Tufts University.

Even with this intimidating list of guests, competitors challenged its guidelines, and won various prizes for their success.

Mehmet's first place project earned him \$5000, and a three-month internship at Motorola's design facility in Boynton Beach, Florida. Howard enjoyed \$2000 for his second place "Pager Project," while Andy received \$1000 for his beeper styled for kids. Let's not forget our two honorable mentions, each awarded \$250. And as if this was not enough, all winners also walked away with a brand new Motorola beeper in addition to their cash prizes.

Where are They Now?

The winners are completing their education, and planning and pursuing career strategies; and thanks to his "Hermes" invention, Mehmet recently ended his three-month, expense paid internship at Motorola's design facility in Boynton Beach, Florida.

Presently he is completing his final quarter as a graduate student at the Rochester Institute of Technology, in Rochester, New



Andy Dehus displays his third-place project—Small Talk Child's Pager—allowing children to call Mom and Dad with the simple press of its "house button" and automatic dialer.

York. However, this past summer Mehmet was Motorola's "prize winning" intern from the beginning of June until the end of August. The program included getting field experience and working along side Motorola employees, as well as earning a salary for a 40-hour week, and boarding accommodations. "I had very simple responsibilities, for the most part giving and discussing fresh ideas about different concepts," said Mehmet. "I also did a lot of research on many projects relating to the 'Pager of the Future' competition, though that was more for my own knowledge to take with me when the internship ended."

Mehmet interacted with many people at Motorola, including representatives of the company's marketing, engineering, and industrial design departments. "The real-life experience was cool. It was great to get critiques and input from the different Motorola representatives," he said. "The internship has helped me learn different aspects of the field. I also discovered which products might be marketable and why. This was an experience that definitely could not have been learned at school."

At press time, Mehmet had no solid career goals. Instead he was just hopeful that he would land a position in industrial design. "My plans are unrestricted and unlimited. Whether it be a job in consulting or even a corporate position within the field, I am flexible."

Did Mehmet know that entering a simple contest would result in an expense paid internship, cash and prizes? "My goal was to win!" ended Mehmet. "When I entered I knew I had only one shot—a do or die situation—and I needed the money! Needless to say, I was happily surprised!"

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The Day the Albatross Flew the Airwaves

The Radio Audubon International Story

BY MIKELL GOETSCH, KOH8FY

Ever since reading about pirate radio in 1978, I had wanted to operate a pirate radio station. I had read an article from a 1976 issue of *Popular Electronics*, when my interest in DX'ing sparked. To my credit, I had several AM BCB stations verified, including KFI-640 in California once weekly hard behind local WHLO in 1979.

The Association of Clandestine Radio Enthusiasts had advertised in mid-to-late 1982 in several publications including *CQ*. Back then the membership was only about \$9.50 for a year's dues, and I joined. At the time KPRC-Pirate Radio Central was running strong. I had planned on starting radio stations Radio Cleveland International and WOBG for Oldies but Goodies. Despite a few unheard test transmissions on a Hallicrafters SSB transceiver nothing more had spurned. I had a fully equipped studio, complete with triple turntables, multiple cassette decks, 8-track tape, a phone patch and a microphone. Of course, there was also a mixer. Unfortunately, one of the test transmissions blew the 150 watt SSB transceiver out.

Later, in mid-1984, I had purchased a Heathkit DX-60 transmitter. Regrettably, the standby-pirate-rig cracked a major selector switch. Therefore, I was again stalled from the airwaves. And, alas, a lapse of interest followed although a glimmering desire continued to burn.

In March 1990, the pirate light again lit up, and after several suggestions, the station name Radio Audubon International flew atop a mast. Promptly, I rejoined ACE and subscribed to *Popular Communications* and *Monitoring Times*.

So June started the development stage for Radio Audubon International. A professional graphic arts company was consulted to design the station logo: a humungous smiling albatross atop The Flying Dutchman masting the pirate flag. The motto "A Free Voice in the Americas" was adopted. A few trips to the local Radio Shack stores put together a capable studio complete with microphones, phone patch, mixing console, equalizers, dual turntables and three dual cassette decks.

The promotional work continued, and a t-shirt company received an order for 48



t-shirts. They featured our logo, as did our QSL sheets and are still occasionally seen worn on a handful of DX'ers and pirate radio enthusiasts.

I attended the 1990 Association Conference on September 7-9, 1990 in Virginia Beach, Virginia. There I set a new precedent in the pirate radio field by purchasing booth space; many a DX'er and ham radio operator opened their eyes in astonishment, and I was told that the FCC even visited my booth. I was visited by several people who claimed to operate pirate radio stations, as well as would-be, might-become-pirates, to whom I offered my encouragement and advice. Several t-shirts were sold, I went out at night and partied and all was deemed a tremendous success.

Throughout 1990 and 1991, several contacts were made and developed with members of the pirate broadcasting fraternity, for the purpose of developing a transmitter network and promoting the station. All identities shall remain confidential, but there were some number one people involved.

Then, in December 1991, amidst much

doubt, Radio Audubon International started transmitter tests. The only one reported was December 26, at 0037-0041 UTC time on 7415 kHz, although others were conducted. This one test, however, was widely reported as far away as Nebraska and Wisconsin, as well as Canada. About twenty-reception reports were received, and, QSL's were immediately sent out.

There was a broadcast on February 16, 1992, for two-hours, but no reception reports were received, nor loggings seen. And, this was the final transmission for Radio Audubon International. As of February 17, 1992, the station was deemed defunct. We had felt that it was best to stop while we were ahead, rather than risk the inevitable bust and Notice of Apparent Liability.

Should anyone still need a QSL for Radio Audubon International, please send us a reception report or follow-up, and we would be glad to verify. Our address is: Radio Audubon International, Box 109, Blue Ridge Summit, PA 17214. Three first class stamps for a reply. ■

COMMUNICATIONS FOR SURVIVAL

Tune into Free WeatherFAX Broadcasts

As winter storms approach, rescue squads throughout the country are taking advantage of free weather facsimile broadcasts that are beamed throughout the country on shortwave frequencies. All it takes is a minimum of a 286 computer, an under-\$299 shortwave radio, a \$129 PC HF facsimile program, and a hunk of copper wire attached to coax from the shortwave set.

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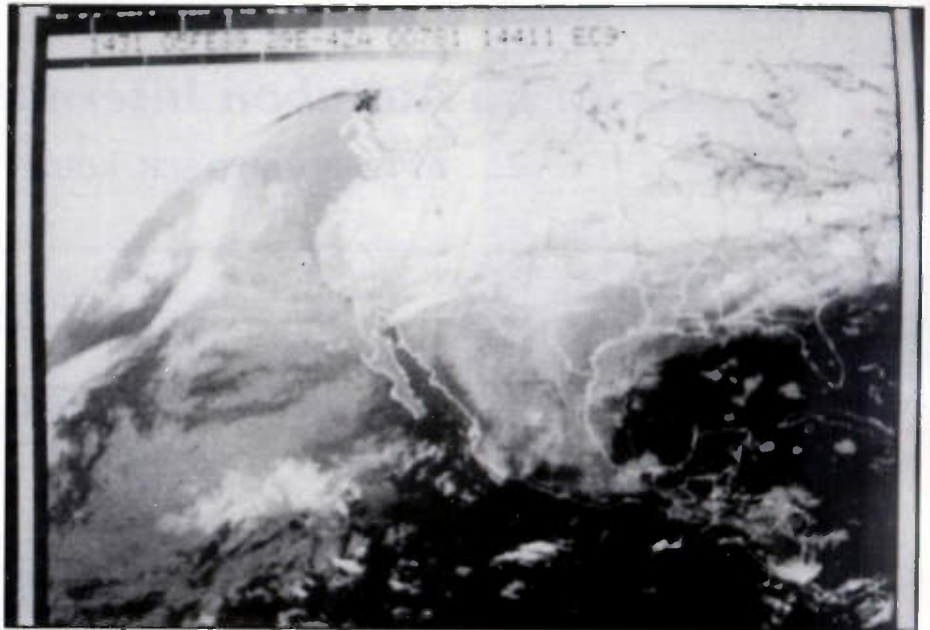
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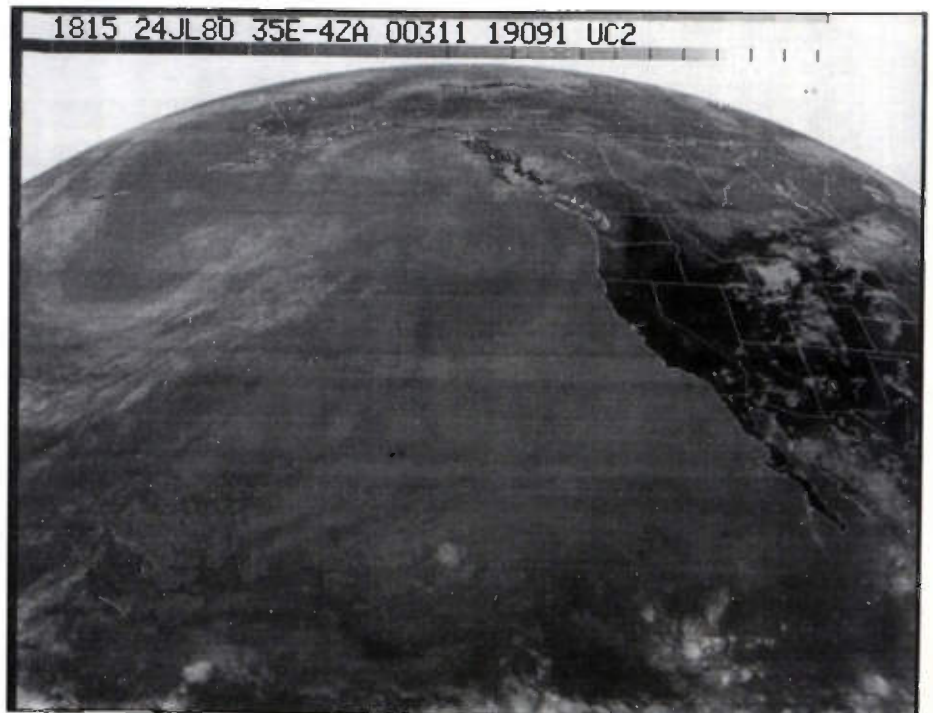
Receive weatherFAX satellite imagery with your ham set on general coverage receive over your computer monitor.

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AOR

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- Wide coverage 500kHz to 1900MHz continuous
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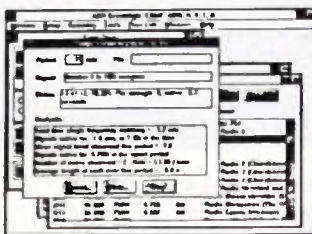
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Frequency: 30-kHz-30MHz opt. int.VHF converter 108-174MHz
 Memories: 100 programmable w/ scan
 Modes: AM, LSB, USB, CW, FAX, FMN
 Sensitivity: 30-540kHz 540-1800kHz 1.8-30MHz

CW	<1µV*	<5µV*	<.5µV*
SSB	<1µV	<5µV	<.5µV
AM	<3µV	<15µV	1.5µV
FM	N/A	N/A	.5µV

*Sensitivity improves with optional 500Hz CW Filter.
 Selectivity: -6dB: CW, SSB, FAX @ 2.4kHz / AM @6kHz / AMN @2.4kHz / CW @500Hz (opt.)
 Tuning Accuracy: 10Hz
 Stability: ±5PPM (-5°F + 130°F)
 Image & Spurious rejection: >70dB
 IF Freq.: 51.655MHz 1st 455kHz 2nd
 Dynamic Range: >100dB @ 25kHz spacing
 AGC Performance: Threshold 1µV; Attack 15 mS delay/200mS (fast); 3±1 sec (slow); RF Input 1µV-100mV will change audio out <10dB
 Ant. inputs: Coax 50Ω unbal., 450Ω bal., Hi-Z for whip
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 Power: 12VDC -800mA(max.); 8AA NiCad or Alk (not incl.)
 Size: 10"W x 3.5"H x 9.5"D; 4.8 lbs.



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 Attenuator: 10dB (helps prevent overload)
 Controls: Key pad and rotary tuning
 Sensitivity: FMN <.5µV / FMW <1.0µV / AM <1µV
 Power: 12VDC, AC adapt. incl., 4 NiCad incl.
 Size: 6.7"W x 1.4"H x 2.6"D; 10 oz.

Features include:

- Lock-out Search & Scan
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- Flex antenna and earplug
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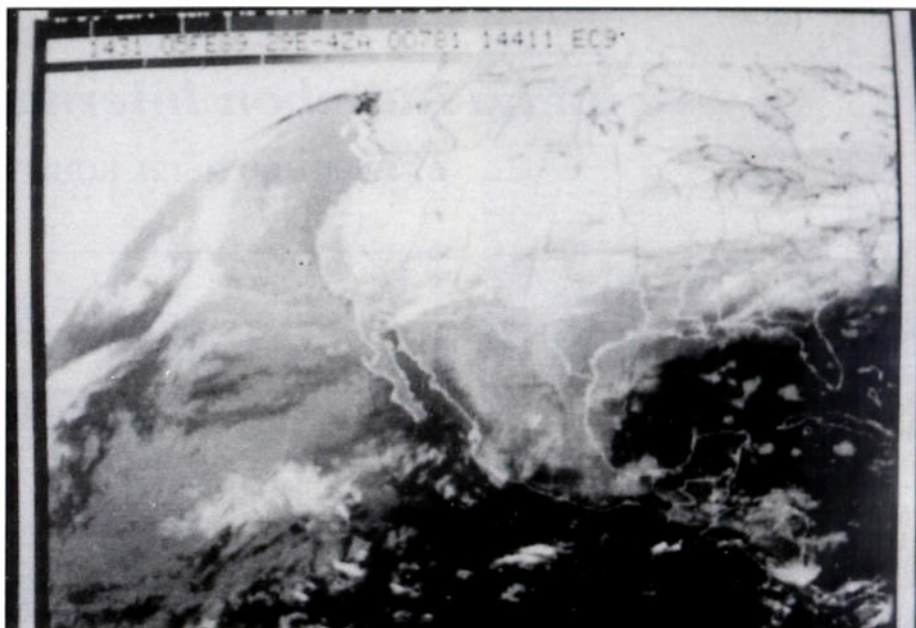
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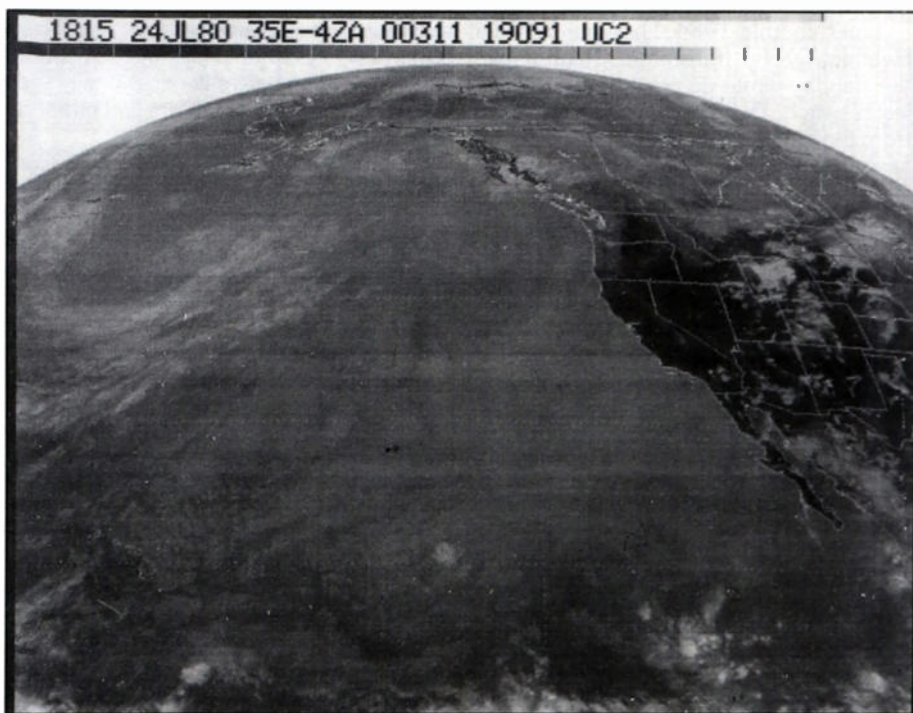
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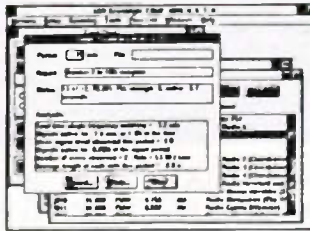
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Memories: 100 programmable w/ scan

Modes: AM, LSB, USB, CW, FAX, FMN

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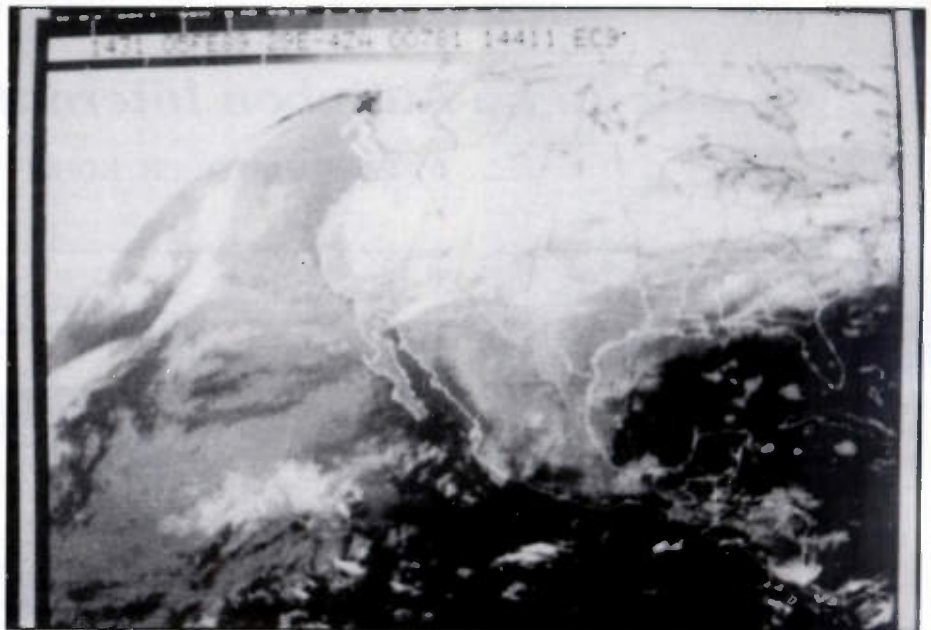
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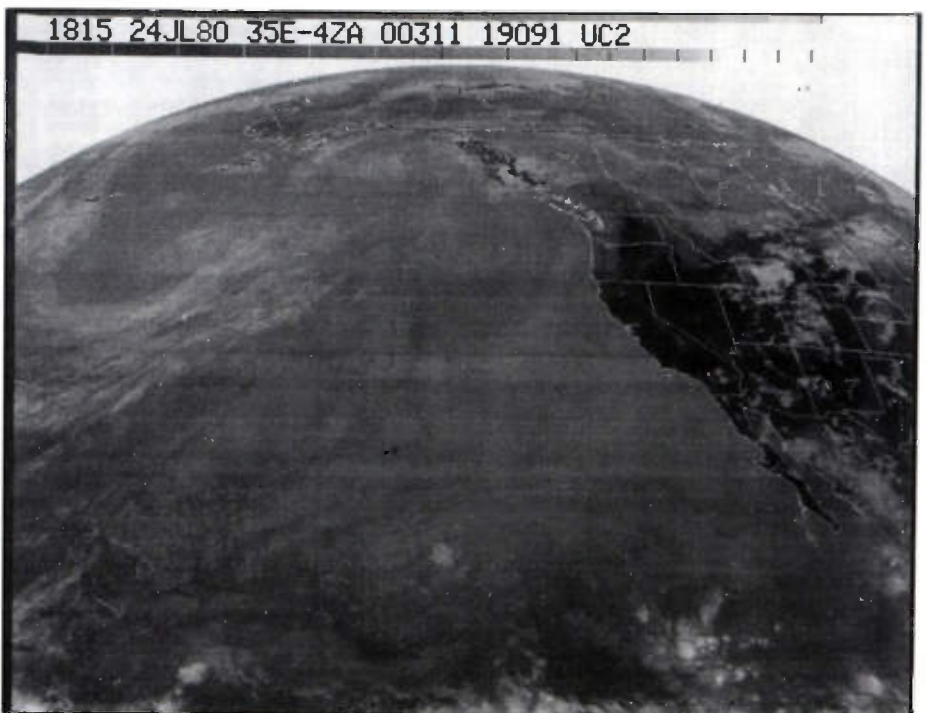
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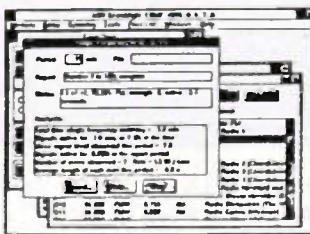
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FM	N/A	N/A	.5µV

*Sensitivity improves with optional 500Hz CW Filter.

Selectivity: -6dB: CW, SSB, FAX @ 2.4kHz / AM @ 6kHz / AMN @ 2.4kHz / CW @ 500Hz (opt.)

Tuning Accuracy: 10Hz

Stability: <±5PPM (-5°F + 130°F)

Image & Spurious rejection: >70dB

IF Freq.: 51.655MHz 1st 455kHz 2nd

Dynamic Range: >100dB @ 25kHz spacing

AGC Performance: Threshold 1µV; Attack 15 mS delay/200mS (fast) 3±1 sec (slow); RF Input 1µV-100mV will change audio out <10dB

Ant. Inputs: Coax 50Ω unbal., 450Ω bal., Hi-Z for whip

IF Output: 455kHz -20dBm 8 Pin Din

Power: 12VDC -800mA(max.); 8AA Nicad or Alk (not incl.)

Size: 10"W x 3.5"H x 9.5"D, 4.8 lbs.



AR3000A

Widest coverage on the market today with a high level of performance and versatility from long wave thru shortwave, VHF and onward to the upper limits of UHF and SHF! Uses 15 band pass filters before the GaAsFET RF amplifiers unlike other receivers which may rely largely on broad band amplifiers. High sensitivity through the entire coverage with outstanding dynamic range and freedom from intermodulation effects.

Frequency: 100kHz-2036MHz

Mode: USB, LSB, CW, AM, FMN, FMW

Circuitry: Triple (USB/LSB/CW/AM/FMN) and Quadruple (FMW) conversion superheterodyne Memories: 400 (4 banks/100 channels)

Scan Rate: 50 ch/sec. Search Rate: 50 steps/sec

Sensitivity(µV): 2.5-1800MHz CW, SSB .25/AM1.0/FMN .35/FMW 3.0

Selectivity: SSB, CW 2.4kHz/ AM, FMN 12kHz

FMW 180kHz

Power: 13.8VDC, <5A max audio,

AC adapt. incl.

Size: 5.5"W x 3.5"H x 7.9"D; 2.6 lbs.



* Less Cellular

AR1000XLT

One of the most popular scanners on the market, allows the user to tune into all the action with continual coverage of .5-1300MHz; no gaps. This is one of the most powerful scanner/receivers available!

Frequency: .5-1300MHz

Mode: AM, FMN, FMW

Memories: 1000; 10 independent banks

Tuning Steps: 5kHz-995kHz

Attenuator: 10dB (helps prevent overload)

Controls: Key pad and rotary tuning

Sensitivity: FMN <.5µV / FMW <1.0µV / AM <1µV

Power: 12VDC, AC adapt. incl., 4 NiCad incl.

Size: 6.7"W x 1.4"H x 2.6"D; 10 oz.

Features include:

- Lock-out Search & Scan
- Cig light plug cord
- Belt Clip • Case
- Flex antenna and earplug
- 1 Year Factory Warranty



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shortwave sets from Radio Shack and Grundig work just as well.

Computer Requirements:

- IBM PC compatible, w/640K.
- CGA, EGA, HGA, VGA, Super VGA are best.
- Hard disk drive if you will store many images.
- One serial port.
- MS DOS 2.1 or higher.

On 386, 486, and Pentium based systems, the program may also make use of EMS memory beyond the main memory for image storage and manipulation.

Resolution of Satellite Imagery:

Grey levels of 640 x 800 x 16, along with EMS memory; images as large as 1280 x 6400 x 256 levels may be captured and stored.

Laser printer recommended if you plan to print out satellite imagery for 16 shades. Dot matrix printers are fine for charts.

The Connection and Programs:

Software System Consulting, San Clemente; 714/498-5784.

AEA, Lynnwood, Washington; 206/774-5554.

Both systems sell for under \$150, are similar in performance, and each manufacturer includes the analog to digital converter built into the comm port plug. Simply insert the disk, run the program, take audio output from your receiver to the comm port input, dial in the frequency on the shortwave set, and stand by for the weather to unfold in front of you.

The powerful transmitters are maintained by U.S. Coast Guard, or the Navy and Air Force. The National Weather Service provides the charts and satellite imagery for them to send. These stations transmit on selected schedules throughout the day and night, and listeners should be able to tune in at least one or two actual transmissions during daylight and evening hours.

Try the higher frequencies during the day, and the lower frequencies at night. A simple dipole antenna of two equal-length wires at least 15 feet long (for each wire) is recommended. These wires are attached to the center and braid of RG-58 coax. The connection point must be at least 20 feet away from the computer to minimize interference. Use a PL-259 coax plug to attach to a communications receiver, or simple alligator clips to attach the center conductor and braid to the antenna connection point on portable shortwave sets. On portable receivers, place them at least five feet from the computer to minimize hash pick-up.

Each weather picture takes 10 minutes to transmit. You can easily identify the weather facsimile signal by the rhythmical sound that sweeps two times every second. Your set must be tuned into USB, and the shortwave receiver with only AM reception

APPENDIX D: World Facsimile Broadcast Schedules by Station

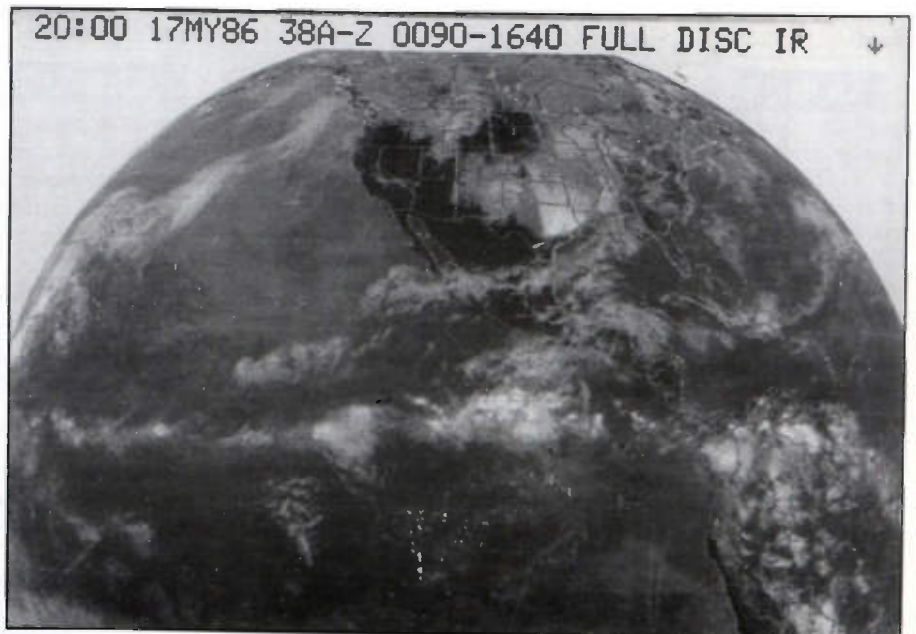
LOCATION	STATION	GMT	CHART
HONOLULU, HAWAII, USA.	NPM	4:14	IR SATELLITE PICTURE
		4:28	SFC PRES. ANAL. POLAR
		4:43	TEST CHART
		5:02	500MB SL 72HR PROG
		5:16	SFC FINAL ANAL. EPAC
		5:40	SEA SURFACE TEMP ANAL.
		5:58	SFC FINAL ANALYSIS WPAC
		6:20	TROPICAL WIND
		6:30	SEA SURFACE TEMP. WPAC
		6:44	SEA SURFACE TEMP. EPAC
		6:58	SURFACE 12HR PROG. WPAC
		7:12	SURFACE 12HR PROG. EPAC
		7:26	50MB 12HR PROGNOSIS WPAC
		7:40	50MB 12HR PROGNOSIS EPAC
		7:54	SIG WAVE HT. ANAL. EPAC
		8:08	SURFACE 36HR PROG. WPAC
		8:22	SURFACE 36HR PROG. EPAC
		8:36	12HR WAVE HT. PROG. WPAC
		8:50	12HR WAVE HT. PROG. EPAC
		9:04	SURFACE PRELIM ANAL. WPAC
9:18	SURFACE PRELIM ANAL. EPAC		
9:32	500MB 36HR PROGNOSIS WPAC		
9:46	500MB 36HR PROGNOSIS EPAC		
10:00	SIG. WAVE 36RH PROG. WPAC		
10:14	SIG. WAVE 36RH PROG. EPAC		
10:28	HORIZ. WX 24HR DEPICTION		
10:51	SURFACE ANALYSIS EPAC		
11:13	SURFACE ANALYSIS WPAC		
11:35	36HR SFC PROGNOSIS POLAR		

High frequency weatherFAX schedules are printed in the software package, showing exactly what image will be sent and when.

will not work. The tones you hear correspond to the levels of gray that you will see on your portable LCD lap-top screen, or your home or office mono or color CRT.

On high frequency, the weather service sends both satellite imagery as well as weather charts. Many will be less than 2-1/2 hours old—giving you a more up-to-date view on current and predicted weather conditions than what you might see on the evening news.

Significant weather fronts are illustrated on the weather charts by hand with big letters and large arrows. The weather forecasters make it clear when significant weather might create a natural disaster. By carefully monitoring these free broadcasts with relatively inexpensive equipment you may already have on hand, you will be much better prepared to anticipate when your team may be called in action from severe weather. ■



Severe weather can be seen forming over Eastern Texas.

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The Clinton administration continues to be befuddled over how to get the current military government out of Haiti and return Jean Baptiste Aristade to power. Apparently there's a new element in the overall scheme of things which involves broadcasting. Word is that a new US government-backed station, Radio Democracy, was to go on the air beaming programs in opposition to the military regime in Port-au-Prince. As this is written we haven't much more information other than that; no frequencies, no schedule. Reports say that the broadcasts will be beamed from an airborne transmitter, a technique not often employed and, we think, not particularly effective. We'll keep you posted.

Meantime, as we've mentioned previously, there are other Haitian-related broadcasts on the air.

Radio Neg Mawon is on the air over Radio For Peace International, broadcasting on Saturdays from 2000 to 2100 on 9400, 15030 and 21645. Radio 16 Desanm is the official voice of the Aristide side, with the program being produced at the Haitian Embassy in Washington. It is broadcast at 0000-0100 Tuesdays through Sundays on 7355, Sundays at 1100-1300 on 9850, Monday through Fridays at 1300 to 1400 on 11790 and 2200 to 2300 on 17835, all via WHRI.

A third program aimed at Haiti is Focus on Haiti, aired Tuesdays and Saturdays at 2100 on RFPI on all of the above mentioned frequencies plus 7375.

The Voice of Renamo, the Mozambique station operated by the Mozambique National Resistance has returned to the air. The station made a brief appearance on 6155 several months ago and then disappeared. This time it is using 6145, with a

one hour broadcast running from 0500 to 0600. The station also operates from 1045-1145 on 9900 and 1600-1700 on 5180. The first of those three choices offers the best chance for reception in North America. The station announces that it operates from the town of Gorongosa in Sofala Province, Mozambique.

Now that the long-awaited Radio Miami International has regular broadcasts underway, the predicted move of at least one of the anti-Castro broadcasters to WRMI has taken place. La Voz de Fundacion, a program of the Cuban-American National Foundation, is now heard on WRMI at 0200 to 0400. This and many of the other broadcasts opposing Castro were "brokered" by WRMI. That is, WRMI bought air time on behalf of these groups. WRMI operates on 9955 daily from 0100 to 0400, though those hours may have increased by now. It might be a good idea of "keep an ear" here, since it seems quite likely that more Cuban opposition broadcasts will be broadcasting via WRMI. Some of them may well be groups that have made little or no use of radio before—though we're just guessing on that point.

A new anti-Castro station is Radio Nacional Cubana, reportedly operating on Mondays, Wednesdays and Fridays from 2200 to 2230, using 7110 variable. The use of this frequency makes it likely that this is a from an actual unlicensed transmitter, unlike most of the Cuban opposition broadcasts these days which are nothing more than blocks of paid-for air time on licensed US commercial religious stations. It's an easy guess that the transmitter used by Radio Nacional Cubana is located somewhere in south Florida. During the heyday of Cuban clandestine radio broad-

casting that area saw such activity on an almost non-stop basis. Ah, the good old days!

Radio News Center of Iraq is being heard on 11695, sign on at 2200, in Arabic.

Radio Muhabura, the station of the Rwandan Patriotic Front, continues to be active—indeed, it's the only station in the country which is on the air at present, at least on shortwave. Radio Muhabura has been heard in North America, but it's a very tough one to haul in. Currently the best opportunity comes on 6285, at the station's sign on around 0410.

Radio Netherlands Media Network has reported that a Zairean opposition group plans to purchase a ship and use it to broadcast programs against the current government in Zaire. The ship would be anchored outside Zairean waters and the proposed station would use a shortwave frequency. We'd say all this definitely falls into the category of "don't hold your breath!"

Radio Dniestr International, the station of the breakaway Moldovan Republic of Pridnestrovie, now uses 15290 for its English to North America broadcast at 2030 to 2100. Monday, Wednesday and Saturday programs are fresh, then repeated the following day.

Reception reports for Radio Dniestr International go to: 45-25th October Street, Tiraspol, Pridnestrovie, Commonwealth of Independent States.

Your loggings and other informational material on clandestine broadcasts and related subjects are always welcome in this column. If you are also reporting to "The Listening Post" column, you can include both in the same envelope, though it is best if your clandestine items are on a separate piece of paper.

All for this month. Good hunting! ■



THE

Cuban Monitor

Vol. 2, No. 3 • August 1989

NEWS FROM THE CUBAN AMERICAN FOUNDATION

The Cuban American National Foundation's La Voz de Fundacion program is now heard on WRMI-9955.

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Wxsat III

Good quality antennas are an important piece of equipment in any aspect of the communications hobby. This is particularly true if you are interested in DX (tuning in distant stations), especially when trying to catch the rarest DX of all—those electronic emanations from places other than earth. And if you want quality pictures from weather satellites you are going to have to do all you can to increase the signal from the satellite—starting with the antenna.

There are two separate weather satellite systems you have access to. One is a geostationary satellite system with satellites 22,000 miles above the equator in the Clark Belt (the same place all television satellites are located). The other is a series of Low Earth Orbit (LEO) satellites, maintaining an altitude of approximately 560 miles. Each system has its own special antenna requirements.

The current U.S. fleet of LEO weather satellites consists of NOAA 9 and 11 which transmit on a frequency of 137.620 MHz, and NOAA 10 and 12, transmitting on 137.500 MHz. These spacecraft display images of earth through Automatic Picture Transmissions (APT).

The antenna used for APT is polarized in a circular form. Instead of using a single vertical or horizontal radiating element, the antenna uses two. The elements are electronically phased 90 degrees apart (1/4 wavelength), and they are at a right angle to each other. The phasing harness (a coax cable matching system) delays the signal transmission from the second element by 90 degrees. This twists the polarity into a circular pattern, which can be twisted to the right or left as desired.

The NOAA spacecraft use Right Hand Circular Polarization (RHCP). Russia also has a LEO wxsat system using RHCP for APT transmissions. China is the only exception, as it uses LHCP for its low orbit weather satellites.

Weather satellites in LEO are only in range of your station for eight to 12 minutes during an orbit. Each satellite makes at least two passes over your location during a 24-hour period. If you want to produce quality pictures, an outside antenna

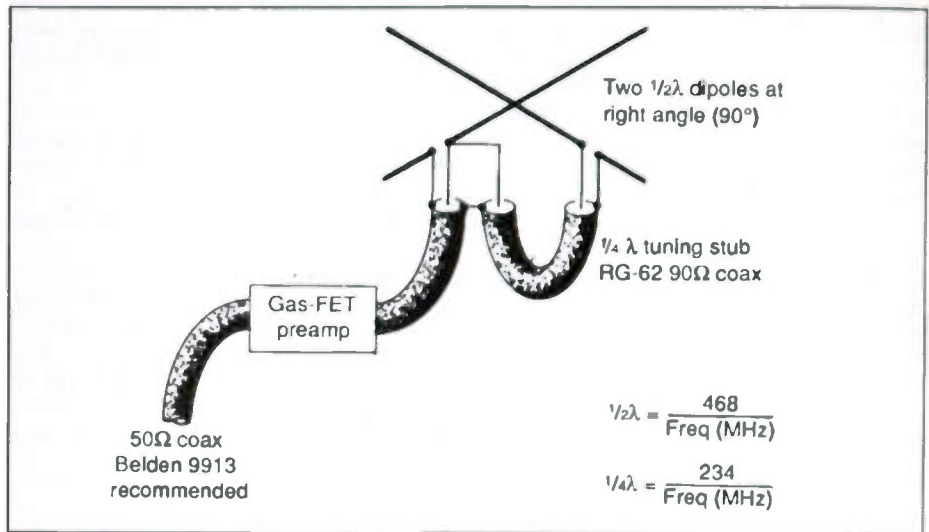
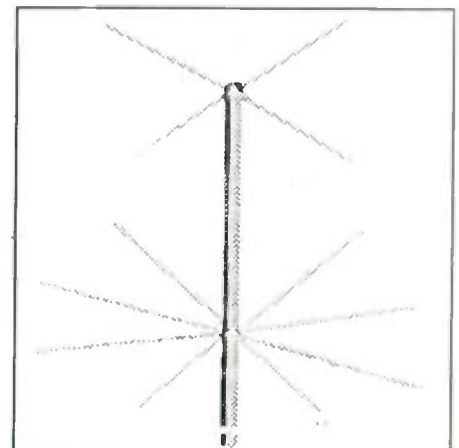


Figure 1. Twist antenna.

and a pre-amp will boost the signal strength. The antenna with RHCP or LHCP are also known as twist or helical antennas. The best plans for such an antenna are found in Ralph Taggart's *Weather Satellite Handbook*.

Figure 1 gives you the basic dimensions for the antenna. So simple, you can make one yourself. Try any one of several methods. You can use 300 ohm twin lead to form your twist antenna and lay it across the ceiling joists of your attic. The same 300 ohm twin lead can be used to make an antenna like Ron Burke's (KB9DJA). He placed the antenna elements inside PVC pipe to protect it from the weather.

While twist antennas are best, some of you may want to experiment with discone antennas if you already own one. A discone



Vanguard APT-1 antenna for polar orbiting satellites.

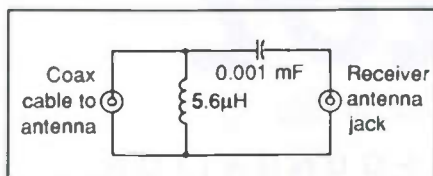


Figure 2. Power coupling filter.

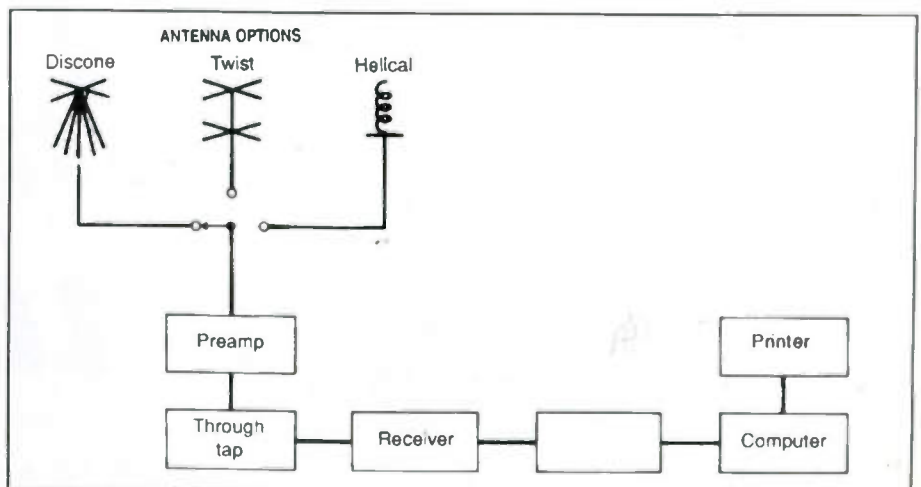


Figure 3. Weather satellite station for 137 MHz.

Lindenbald, Quadrifilar, and Helix

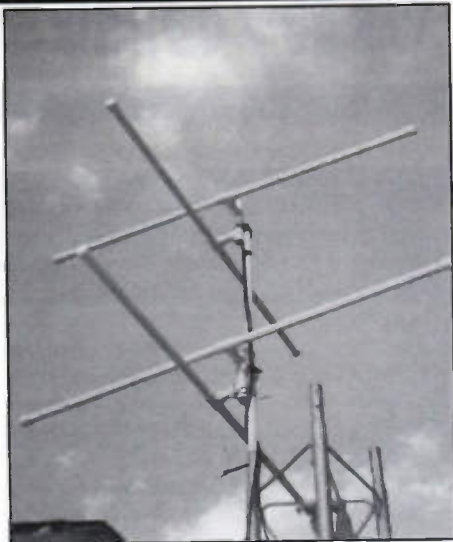
These somewhat less than everyday names are those of specialized antennas. They are, or can be, used as weather satellite antennas for receiving APT.

The Lindenbald is a harnessed set of four dipoles, 30 degrees apart, each tilted 30 degrees. This omni-directional antenna performs well in the horizontal plane and favors low angle vertical polarized signals.

The Quadrifilar antenna resembles an eggbeater. It is best described as a complex twist antenna with two pairs of feed points 90 degrees out of phase (see accompanying photo).

Finally, the Helix antenna, polarized in a circular cycle, looks like a cork screw.

Each of these antennas can be adapted for use in the 137 MHz satellite band. For a detailed look at each of these antennas, an explanation of how they work, and instructions on how to build these sky hooks, see Martin Davidoff's book, *The Satellite Experimenter's Handbook*, published by ARRL.



Twist antenna from plans in the Weather Satellite Handbook.

the coax line. Twelve volts DC required to run the pre-amp is applied to the coax cable's shield and center connector. This method is also used in TVRO systems, so pay attention. Whenever you want to pull an RF signal off a coax also carrying DC, you must use a through-tap or power coupling filter. Vanguard receivers already have this coupling circuit built in. All others will need to have one attached in order to protect the receiver's front-end from DC voltage. Figure 2 shows how to build your own through-tap. It is usually best to apply the DC voltage to the pre-amp in the shack at the coax cable just before connecting it to the power coupling filter.

For more information on Vanguard products, write Vanguard Electronics Labs, 196-23 Jamaica Avenue, Hollis, NY 11423, call (718) 468-2720, or BBS (718) 740-3911.

Well, that takes care of this month's look at wxsat. Next month we will look at antenna systems for the geo-stationary weather satellites. Stick around. We still have the modem, computers, and software to look at in coming months. See ya' next month.

is excellent for reception of non-video space signals. A discone with a good pre-amp can give you five to eight minutes of decent APT per pass. The discone is also a favorite of the military, both U.S. and Russian. Air Force Communication Security intercept vans use four discone antennas for wideband operation.

A professional quality twist antenna for weather satellite reception is the Vanguard APT-1. It also has ground radials that work as a reflector.

Next up is coax cable. I would use nothing but Belden 9913, a low loss coax, 1.4 dB at 100-feet, with 50 ohms impedance. Why go through the trouble of putting up a special antenna, installing a pre-amp, and buying some expensive equipment to display maps simply to have the signal leak out of the coax before even hitting the receiver? Instead, buy good coax and connectors. And don't use special adapters from one type connector to another unless absolutely necessary—you can lose as much as 3dB per connector that way.

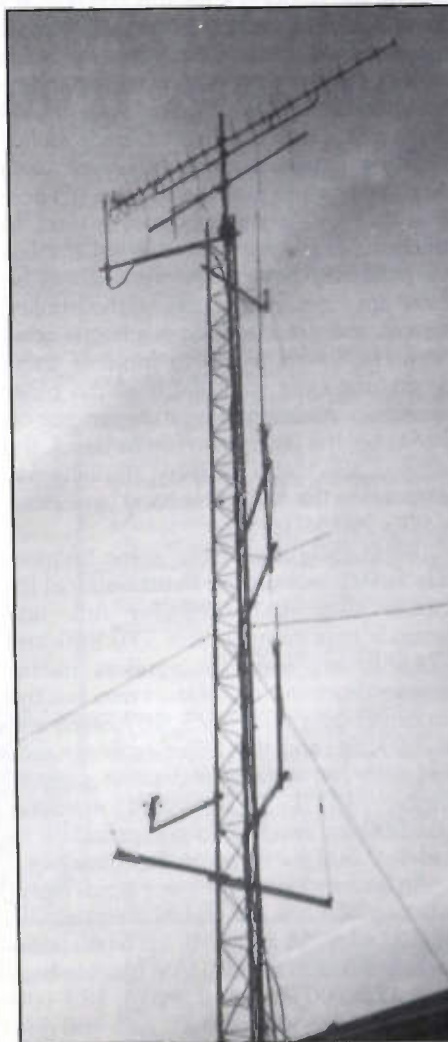
Next you will need a pre-amp, and several manufacturers have them for the 137 MHz band, costing between \$60 and \$85. Vanguard has a complete line of pre-amps, down-converters antennas, receivers and complete systems.

You want to mount your pre-amp close to the antenna. This is usually accomplished by strapping it to the mast just below the antenna mounting bracket. This will boost the signal strength before it has incurred any loss by being fed into the coax.

It is at this point that a "warning" is called for. Many pre-amps are powered through



The Quadrifilar helix antenna shown above is considered most unusual.



Ron Burke, KB9DJA, has a discone antenna, among his many others.



Ron in action at the console of his weather station.

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

In most areas of the United States, winter monitoring is about to take grasp. When the snow blows and the roads close, get your scanner ready for the action. Be sure to program in the frequencies used by snowplows for your town or city, as well as state highway crews who keep the main thoroughfares clear during snowstorms.

From the mailbag comes a letter from Jason Bond of Milwaukee, Wisconsin. Jason says he's been a scanner hobbyist for 14 years and has subscribed to POP'COMM for nine years. He has two Uniden Bearcat scanners—200XLT and 2500-XLT. His logic in having the handhelds is that with all the advanced features on scanners, he'd just assume have the radios go anywhere he goes. Jason says he likes to monitor mostly bus systems and fire departments, however, he's noticed that Wisconsin Coach Lines, a private charter and commuter bus line, has 800 MHz antennas on top of the buses in addition to cellular phone antennas. He hasn't had any luck finding the frequency for this bus line. It's likely that this bus line is using 800 MHz trunked radio systems. Each area the buses travel into may have their own trunked system, too. In fact, the trunked system used in your area may have anywhere from five to 20 channels or more. However, each time the bus line uses the system, it's possible that a different frequency is used. In addition, if you want to hear just the bus line, that may be next to impossible because there are many other users on the trunked system, too. If indeed the bus line is using trunking, forget trying to monitor them unless you want to monitor all the other users, too. And don't forget, depending on the size of the antenna on those buses, the bus line also might be using trunking frequencies in the 900 MHz band (specifically 935-940 MHz), too.

Jason also passes along some frequencies for Milwaukee: the Pettit National Ice Center uses 467.8125 for rink and grounds maintenance and 170.240 and 171.905 are used for wireless microphones (from my own files, I also see the ice center uses 467.7625, 467.8625 and 467.9125); and the Miller brewery uses 451.425 for security and some maintenance, 451.175 for yard tractors, 464.550 for production communications and 469.500 for shipping coordination.

An anonymous contributor sends along a listing of Civil Air Patrol frequencies: 26.62 (sideband and AM), 26.6185 (sideband and AM), 121.600 (AM training beacon), 122.900 (AM air training), 123.100 (AM air search and rescue), 143.750 (FM repeater input for 148.125), 143.900 (FM repeater input for 148.150), 148.125 (FM



This tower is located at a small trucking terminal in West Burlington, Iowa. The tower is used to maintain contact with on-the-highway trucks. To find highway trucks in your area, search between 43.86 and 44.42, 159.495 and 160.200, and 452.375 and 452.875. (Photo by Chuck Gysi, N2DUP)

repeater output for 143.750), 148.1375 (FM local operations), 148.150 (FM repeater output for 143.900 and primary simplex), 149.5375 (FM air operations) and 149.895 (FM packet).

Eddie Methot checks in from north of the border in Dalhousie, New Brunswick, to say he uses a Realistic Pro-2011 scanner with a ground plane antenna on a 35-foot tower. He notes that the Restigouche Amerindian (Native) police have removed inversion scrambling from their frequency on 154.010. Here are some additional frequencies for Restigouche County and the South Shore of Quebec: 155.970, Dalhousie police; 171.000, Quebec Warden; 154.175, Maria, Quebec, Native police; 157.620 and 451.7125, NBIP papermill; 38.17, 38.24 and 38.47, NBIP papermill security; 48.22, 47.84 and 48.18, NBIP Woodlands Division; 464.3875, Dalhousie jail; 122.200, Charlo Airport tower; 150.650, provincewide ambulance repeater; 142.575, N.B. Power; 168.975, Dalhousie town maintenance; 155.370, Campbellton RCMP; 156.525 and 156.575, Dalmig ferry service; 156.550 and 156.600, Goodfellow Shipping.

From Maui, Hawaii, Kawika Opunui checks in with a question about antennas

for scanners. He wonders how well an amplifier connected to a good scanner antenna would work to pick up signals from 60 miles away. Kawika says signals have a tendency to come and go at night and he likes to try to listen to communications from Oahu. He says he bought a discone antenna, but that it seems to do only as good as a job as the whip antennas that come with the scanners. The reason the discone antenna doesn't perform like you want it to is that it has no gain, and no capability of amplifying the signal after it receives it. Discone antennas are designed to cover a very large frequency range (typically 50-900 MHz), but don't offer any gain. Other scanner antennas are designed to cover the scanner bands (only usually 30-50, 150-174, 406-512 and sometimes 806-960 MHz) and offer gain on those bands.

If you want to try to give your discone some gain, try purchasing a TV amplifier. These TV amplifiers, which install in the line with your coax, usually offer gain for 50-900 MHz signals. That's basically all the TV channels, but it also will work for scanners since most of your listening will be in that segment. The amplifier may help you hear signals that only are static now. Give it a try and see how signals improve. Another thought is that those signals that come and go now may be received now as a result of atmospheric conditions. You may be receiving some of the signals when a warm-air inversion occurs through ducting, where the signals travel through a "duct" from their point of origin to you. It's a situation that occurs frequently in many areas, and the signals have a tendency to travel further over water, especially around the islands of Hawaii. That also will explain why you hear the signals good sometimes and not at all other times.

John Temmir of Duluth, Minnesota, sends along some frequencies of interest for his city: 155.595, police dispatch F-1; 155.415, sheriff's dispatch, F-2; 155.640, police F-3; 154.310, fire dispatch; 154.070, fireground; 154.295, statewide fire mutual aid; 155.955, Duluth Township fire; 155.715, streets; 155.145, airport operations; 153.560, water and gas; 155.280, Gold Cross Ambulance dispatch; 122.950, airport unicom; 124.100, airport ATIS; 121.900, airport ground operations; 125.800, airport approach and departure; 162.550, weather broadcasts; 154.920 base and 158.910 mobile, Minnesota State Patrol at Duluth; and 151.070 base and 156.045 mobile, Minnesota Department of Transportation at Duluth.

Tom Thomas of Boise, Idaho, sends along his list of favorite frequencies for Boise: 453.300, Boise police dispatch

"A"; 453.350, Boise police information "B"; 453.425, Boise police tactical "C"; 453.475, Boise police tactical "D"; 460.025, Ada County sheriff regional all-call F-1; 460.450, Ada County sheriff dispatch F-2; 465.275, Ada County sheriff car to car F-3; 460.225, Ada County sheriff information F-4; 154.370, Boise fire dispatch primary "bronze"; 154.430, Boise fire dispatch secondary "orange"; 154.160, Boise fireground "gray"; 154.250, Ada County north fire "red"; 154.400, Ada County south fire "yellow"; 155.160, Boise ambulances; 155.085, Boise streets F-1; 154.965, Boise streets F-2; 155.265, Ada County EMS administrative "blue"; 155.280, Ada County EMS state dispatch F-2 "green"; 155.340, Ada County EMS state hospital to ambulance "white"; 155.055, Ada County EMS dispatch "purple"; 153.920, Ada County government services; 155.760, Boise State Prison; 162.550, National Weather Service broadcasts.

Jack Fairton of Columbus, Ohio, writes to say that he has been reading *POP-COMM* for five years and enjoys Scanning VHF/UHF best. He has a Realistic Pro-2005 scanner at home and a Uniden Bearcat 200XLT he carries around with him. He likes to listen to business band channels in addition to local police and fire on the 800 MHz band. He asks for a list of frequencies used by Ohio State University in Columbus. Here's a list to get you started: 461.725, 463.375, 463.400, 463.650, 464.325, 464.525, 464.675, 464.875, 464.975, 157.740 (paging), 462.750 (paging), 462.825 (paging), 462.875 (paging), 464.175 (fire and ambulance); 453.425 (physical plant), 453.475 (PBX), 453.500 (police F-1), 453.750 (police F-2), 453.625 (transit buses), 453.025 (hospital paging), 453.075 (hospital paging), 453.175 (hospital paging), 464.225 (hospital security).

Johnny Johnson of Royal Oak, Michigan, says he likes to listen to railroads. Here is a list of Conrail frequencies he has heard in the Detroit area: 160.800, road and Warner yard; 161.070, yard and Delray tower; 160.980, Lincoln, Mound, North, Sterling and Willow Run yards; 160.860, Ecorse Junction, Rouge yard and Schaeffer tower; 160.560 and 160.680, police; 161.280, Detroit Railroad Police (dispatched by GTW).

Harry Raymond Jr. lives in Harrisburg, Pennsylvania, and says he likes to monitor utility companies on his AOR AR1000XLT handheld scanner and Uniden Bearcat 855XLT. He passes along a list of frequencies used at the famed Three-Mile Island nuclear plant in Middletown, Pennsylvania: 33.14 (training department), 451.050, 451.125, 451.1625, 451.225, 451.375, 451.525, 451.675, 464.3625.

From my own files comes a list of frequencies used by the Department of Energy during Three Mile Island's fateful incident between March and April 1979. The

Nevada Operations Office, based in Las Vegas, used 75 portable radios, two repeaters and 35 pagers. These radios operated on the following frequencies: 164.275, 168.450, 171.200 and 171.950. In addition, a very limited amount of equipment belonging to the U.S. Forest Service also was used, in addition to VHF mobile phones on 152.510 and 152.810. This information was obtained in 1980 as a result of a Freedom of

Information Act request that I filed.

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips worth passing along to your fellow readers? How about sending in a photo of your listening post or antenna farm? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909, or Email to scan911@aol.com through Internet. ■



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Lockheed Corp. Test Shows
Wilson 1000 CB Antenna Has
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In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

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The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

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Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

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So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

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Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
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Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870829

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

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Little Whi.....	29 ⁹⁵
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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

I've previously suggested here that 911 calls from cellphones will provide prompt help for highway and neighborhood emergencies. Go and try to be helpful. I have been quickly put on notice by several readers that those instructions should have been qualified with the restrictive phrase, "in many areas."

One place where this could be a problem is Connecticut, writes Roderick W. McLennan, of Madison. Rod points out that if 911 is dialed up from a cellphone in that state, the caller reaches the nearest Connecticut State Police barracks. That agency seems interested only in happenings along state highways and other selected jurisdictional areas. They do not transfer calls to local agencies, nor will they even advise the caller of an appropriate number to call to receive assistance.

A letter from Jeff Multer, Charlotte, NC, advises that most counties in his area have some form of 911 service, and those calls are free to cellphone users. Problem is that when your call is picked up by tower (cell site) located outside the county in which you are located, dialing up 911 connects you to the wrong county's public safety dispatching system.

For instance, his Charlotte-based carrier has no towers in Lincoln County, but covers that area from four cell sites north and south of it. Cellphone callers to 911 from northern Lincoln County reach Catawba County's communications center, which is nice enough to transfer the call. Hitting a site from the southern area of Lincoln County connects you to the Charlotte-Mecklenberg County 911 system. They advise you of a seven-digit toll and air-time charge number to dial for reaching a public safety agency in Lincoln County.

Jeff suggests that cellular service carriers offer no-cost access to all public safety agency numbers (including seven-digit) used for police, fire, or rescue. I'll second that. Regardless of whether they do this, at the very least, companies should provide subscribers with a the call-up numbers for area public safety agencies that can't be accessed by dialing 911.

Helpful Hints for Cellphone Owners

This column has the most creative readers in radioland. Jeff Multer, mentioned above, passed along several good ideas drawn from the use of a cellphone during his 200-miles-per-day on the road.

His cellphone dual-NAM cellphone, like most phones, can be user-programmed to (1) stay on either wire or non-wireline, (2) "prefer" one over the other, or (3) stay on the "home" system. His needs are best served by selecting the third choice.

Jeff's cellphone is set up with a number (NAM) for the wireline carrier in the Charlotte area, and one for the non-wireline carrier in the North Carolina mountains (where the Charlotte company's coverage is poor). By selecting "home," there's no chance he'll roam if he forgets to switch service carriers. If he wants to roam, it's a simple process to select one of the other carrier/system choices.

Another idea from Jeff points out that it's a common practice among cellphone dealers to use the last three digits of the phone number as the "lock" code. Jeff has an Audiovox MVX-700 pocket phone, and on phones like his, the phone number is displayed each time the cellphone is turned on. Being concerned that someone might

use his cellphone if he misplaced it, he had the device pre-programmed so that "J. Multer" appears each time it is turned on. If the phone gets lost, this buys him a little time to contact his service carriers, as well as provides the name of the owner to someone who might find the unit.

Lastly, Jeff writes that vacationers to North Carolina's scenic Outer Banks will finally be able to use their cellphones in all areas. Service is now available throughout Dare County, including Hatteras. This is thanks to U.S. Cellular's previously existing older northern site in Manns Harbor, and their new one at Avon, in the south. The Avon tower also hosts the Hatteras ham repeater antenna, plus National Park Service and Dare County communications antennas.

Who's that Tap-Tap-Tapping My Phone?

One of the largest sources of heroin in the San Francisco Bay area turned out to be an international ring. A few months ago the operation was shut down after the arrest of 17 Bay Area suspects following a year and a half investigation conducted by the FBI, DEA, INS, and the Alameda County Narcotics Task Force. Additional arrests were made in New York, Los Angeles, District of Columbia, and London.

The *West County Times*, of Contra Costa County, Calif., mentioned the electronic surveillance conducted on suspect Pius Ailemen. The newspaper reported, "The crux of the case is evidence obtained from wiretaps of Ailemen's cellular telephone over the past five months. Agents who conducted the wiretaps heard discussions about smuggling heroin from South-



The PR-5200B can program a NAM into most cellphone models in about a minute.



The Executive Beeper Keeper keeps your Motorola Bravo or Bravo Plus pager well-dressed in hand-stitched leather.



What a clever idea from U.S. Wireless Data, Inc. This is a portable cellphone and wireless credit card terminal for use at locations where landline phone service isn't available.

east Asia to the United States, most often by way of Amsterdam and London."

Thanks for Don Dennon, El Sobrante, Calif., for sending this along. Guess Aileen can always ask the cellphone industry to go to bat on his behalf for the feds' blatant ignoring of the ECPA! Why not? The salesman probably told this idiot that he was assured of the expectation of complete privacy. Sorry about that.

How much *China White* heroin flooded into the USA because of cellphone calls? Cellular carriers that allow their facilities to be repeatedly used for criminal activities do not get into trouble with the FCC. To get a perspective on this, weigh it against the FCC's \$1-million-plus sanctions against broadcasters that carry Howard Stern. Are they trying to tell us that smutty humor is worse than narcotics? A debatable point.

Programmer

The Curtis PR-5200B *Universal NAM-MER* is a popular device used for programming cellphones. It accommodates all cellphones using a 32x8 NAM. The device can program more than 125 different NAM dependent cellular phones with numerous operating options. A built-in bit-editor allows for unique programming situations.

This is a user-friendly stand-alone piece of equipment with menu-driven operation. It takes about a minute to program an NAM. In addition to programming, it can also read out unknown NAM's, as well as feed information into a serial printer.

For further information regarding the PR-5200B, as well as its availability, contact: Curtis Electro Devices, 4345 Pacific

Street, Rocklin, CA 95677. Phone: (916) 632-0600.

Portable Cellphone Credit Card Terminal

The POS-50, from U.S. Wireless Data, Inc., is a portable integrated check/credit card authorization terminal and cellphone. The unit can be transported to and used at any temporary site where cellular service may be accessed.

Using the POS-50, a merchant or ticket seller can control a bad debt, improve cash flow, and increase sales by instantly verifying credit cards, debit cards, and personal checks at remote locations using cellphone facilities.

The POS-50 verifies and approves the transactions before issuing customer receipts and an authorization code that allows funds to be electronically transferred into the merchant's bank account.

This device lends itself to numerous applications at outdoor activities and events such as flea markets, hamfests, rallies, antique shows, farm stands, carnivals, fairs, auctions, stamp/coin shows, sports clubs and events, as well as arts/crafts shows. It is suited to any kind of mobile service or business-like fast food delivery, taxi/limo, home delivery, vending machine services, home repair services, courier services, party fishing boats, and mobile retail sales.

It weighs less than 7 lbs, has a 128K memory, with a 16-position keypad and 16-digit/14-segment display. There's a track 2 card reader, PIN pad interface, and 24-column printer. All of this is matched to a fully-operational 3-watt cellphone. The

POS-50 operates from a rechargeable battery, a cigarette lighter plug, or its AC power supply/charger. There's an RJ-11 telephone/data interface, too.

The POS-50 struck me as a useful product whose time has certainly arrived. I think you'll be seeing a lot of these around.

The POS-50 may be purchased, leased, or rented from U.S. Wireless Data, Inc., 4888 Pearl E. Circle, Suite 110, Boulder, CO 80301. Phone: (303) 440-5464.

Beeper Keeper

If you have a Motorola Bravo or Bravo Plus beeper, there's an attractive carrying case accessory to use with the device. This is called *The Executive Beeper Keeper*, which is hand stitched and made from fine leather in your choice of one of five colors (black, brown, burgundy, natural, or tan). A brass window is decorative and allows an unobstructed view of the pager display. All pager functions and options are accessible while the pager is holstered. Monogramming in 14K gold is optionally available at \$2.50 extra (two or three initials, specify when ordering).

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The Results of the May, 1994 Eclipse

In the April, 1994 issue of *POP'COMM*, this column discussed the annular eclipse of the sun that was to take place on May 10, 1994. In that column, I asked for any readers who went DXing during the eclipse to note any unusual receptions and send them to me for use in this column. Several readers did, and I'm pleased to share their loggings with you this month.

How did the eclipse go for me? I didn't make any special efforts to travel to the path of annularity, as my home was in the path of annularity for the January, 1992 eclipse and I had observed a "total" annular eclipse then. Instead, I decided I would follow the 1994 eclipse via radio. Unfortunately, the eclipse was a washout visually (it was foggy at my home during the eclipse) and propagationally.

Due to the crowded AM band at my location, I concentrated on 2500 kHz. This is the frequency for WWV in Fort Collins, Colorado. This station is heard at a powerful level at my QTH at night but not in day. I started listening to 2500 kHz a few minutes before maximum coverage of the solar disk (about 83%) at my location. I heard nothing but noise on 2500 kHz until about ten minutes after maximum coverage here. At that point, there was a "fluttering" noise like that heard when a station is trying to fade in. This continued for about 15 minutes, and at times there was a weak but definite carrier in for a few seconds until it faded and was replaced by the fluttering. But the signal never did fade into audibility, and eventually the fluttering was replaced by the usual daytime noise.

Other Receptions

Another *POP'COMM* reader, Dr. Stephen Margolis, listened from his home in Williamsville, NY. At 1:27 p.m. Eastern time, he was monitoring 1510 kHz when he heard CKOT in Tillsonburg, Ontario, a station he has never heard before in daytime from his location. At 1:35, CKOT faded out and was replaced by an unidentified station believed to be somewhere in Pennsylvania because of the items heard during a newscast, such as several references to Pennsylvania towns and that state's governor and U.S. senators. He had hoped to log WSSH, a 50 kilowatt station in Boston on 1510 kHz during the eclipse, but heard no trace of it. Dr. Margolis said that he ob-



served no unusual receptions while the area of maximum darkness was to the west of his location.

Ken Chatterton made a comprehensive report of his eclipse DX in the June 20, 1994 issue of *DX News*, the bulletin of the National Radio Club (P. O. Box 118, Poquonock, CT, 06064-0118; send \$1 for a sample bulletin). His listening post was in northern New York just east of Lake Ontario. The eclipse was maximum at his location at 1:30 P.M. Eastern time, and Ken started listening at noon and continued until 3:00 p.m. Several of his catches were notable. On 550 kHz, WGR in Buffalo, NY is normally weak but clearly audible on that frequency. As the eclipse progressed, WLWA in Cincinnati, OH began to fade in under WGR. WGR remained atop WLWA throughout, but it was quite strong at its peak. WLWA eventually faded out and was replaced by WDEV in Waterbury, VT. WDEV eventually increased in strength until it was atop WGR. When the eclipse was half over, WGR faded out and there was a jumble on 550 kHz. Ken eventually heard a French station on the frequency, which he believes was probably CHLN in Trois Rivieres, Quebec. Very soon after that, he believes he caught an identification for CFNB, Fredericton, New Brunswick. A few minutes later, only WDEV was on 550 kHz, and it faded away at the end of the eclipse to leave WGR alone on the frequency.

Another channel Ken monitored was

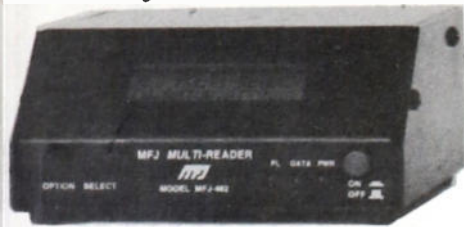
1360 kHz, where WMNS in Olean, NY, is normally weak but present when WKOP in Binghamton, NY, is nulled with a loop antenna. Ken oriented a loop antenna along a southwest/northeast line so it could have maximum reception along the path of the eclipse. He heard nothing unusual until the mid-point in the eclipse, when a station with religious programming was heard for a few minutes. This was soon replaced by a station where the announcer mentioned "here in southern Illinois" and "down in Evansville." Ken suspects this might have been WYER in Mt. Carmel, IL, which is in southern Illinois and near Evansville, IN. As the eclipse progressed, WAOZ in Cincinnati, OH, took over the channel. At the peak of the eclipse at Ken's location, CJVL in Ste. Marie de Beauce, Quebec, took over the channel with its relay of the French programming from station CKRB. A few minutes later, he heard a country music station whose announcer mentioned "the bay's best music," leading Ken to suspect that the station may have been CKBC in Bathurst, New Brunswick. Toward the end, WMNS faded back in as the only station on the channel.

An Eclipse DXpedition

"You Should Know" fan Kirk Wines of Adelanto, CA, decided to travel to the "center line" of the path of the eclipse to view and DX it. He selected Columbus, NM, where he set up his monitoring and pho-

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3x2x4 in. 12VDC or 110 VAC with MFJ-1024 MFJ-1312, \$12.95.

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The MFJ-956 is a *high-Q* passive LC preselector that lets you boost your favorite stations while rejecting images, intermod and other phantom signals. Covers 1.5-30 MHz. Has preselector bypass, receiver grounded position. 2x3x4 in.

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MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection device. Good to 500 MHz. 60 dB isolation at 30 MHz.

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POP'COMM'S World Band Tuning Tips

November—1994

Freq.	Station/County	UTC	Notes	Freq.	Station/County	UTC	Notes
2360	R. Maya, Guatemala	1130		6115	R. Union, Peru	0900	SS
2460	R. Alvorada, Brazil	0900	PP	6120	R. Globo, Brazil	0900	PP
3205	R. Ribeirao Preto, Brazil	0000	PP	6125	Spanish National Radio	0230	
3210	R. Mozambique	0300	PP	6150	AWR, Costa Rica	0600	
3220	Channel Africa, S. Africa	0300		6150	R. Record, Brazil	0030	PP
3220	Radio Orange, S. Africa	0400		6165	R. Netherlands, Bonaire relay	0100	
3222	R. Kara, Togo	0600	FF	6165	Swiss Radio Int'l	0530	
3240	TWR, Swaziland	0330	local lang.	6180	R. Nacional Mendoza, Argentina	0830	SS
3280	La Voz del Napo, Ecuador	1000	SS	6185	R. Educacion, Mexico	0600	SS
3290	R. Centro, Ecuador	1000	SS	6190	BBC, Lesotho relay	0300	
3300	R. Cultural, Guatemala	0300		6205	HCJB, Ecuador	0300	
3335	R. E. Sepik, Papua New Guinea	1130		6235	R. Quisqueya, Dominican Rep.	0200	SS
3340	R. Altura, Peru	1000	SS	6245	Vatican Radio	0640	
3356	R. Botswana	0400		6280	King of Hope, Lebanon	0400	AA
3370	R. Tezulutlan, Guatemala	1100	SS	6305	La Voz del Cid, anti-Cuba	0600	SS
3375	R. Nacional Sao Gabriel, Brazil	1000	PP	6724	R. Satellite, Peru	0300	SS
3380	R. Chortis, Guatemala	1130	SS	7100	VOIRI, Iran	0028	s/on
3385	Educadora Rural, Brazil	0930	PP	7125	Italian R. Relay Service	1030	
3985	Swiss R. Int'l	0600		7150	Capital Radio, S. Africa	0330	
3995	Deutsche Welle, Germany	0400	GG	7160	BBC via Singapore	1100	
4409	R. Eco, Bolivia	0100	SS	7190	VOIRI, Iran	0030	
4472	R. Movima, Bolivia	0030	SS	7200	Rep. of Sudan Radio	0300	AA
4725	V of Myanmar	1100	Burmese	7215	TWR, Swaziland	0430	
4755	Rdf. Maranhao, Brazil	0200	PP	7250	Vatican Radio	0600	
4760	Yunan PBS, China	1200	CC	7255	V of Nigeria	0500	
4765	RTVC, Congo	0355	s/on, FF	7265	Sudwestfunk, Germany	2200	GG
4770	R. Nigeria, Kaduna	0500		7275	ELBC, Liberia	0655	s/on
4777	R. Gabon, Libreville	0500	FF	7325	BBC, England	0000	
4780	Onda Musical, Dominican Rep.	0200	SS	7345	Czech Rep. Radio	0700	
4790	R. Atlantida, Peru	0200	SS	7355	KNLS, Alaska	1300	
4800	R. Lesotho	0400	vernacular	7385	TWR, Monaco	0700	
4805	Rdf. do Amazonas, Brazil	0100	PP	7390	V of Broad Masses, Eritrea	0330	vernacular
4820	LV Evangelica, Honduras	0300		7475	RTT Tunisienne, Tunisia	0500	AA
4830	R. Tachira, Venezuela	0200	SS	9195	R. Omdurman, Sudan	0255	sign on, AA
4835	R. Tezulutlan, Guatemala	1200	local	9280	WYFR via Taiwan	1400	CC
4835	RTV Malienne, Mali	0600	FF	9355	KHBI - Monitor Radio, Saipan	1400	
4845	R. Fides, Bolivia	0130	SS	9420	Voice of Greece	0130	GG/EE
4865	La Voz del Cinaruco, Colombia	0100	SS	9435	Kol Israel	0500	
4870	ORTB, Benin	0500	FF	9445	Voice of Turkey	2330	TT
4885	R. Clube do Para, Brazil	0830	PP	9475	R. Cairo, Egypt	0200	
4890	Africa No. One, Gabon	0400	FF	9480	TWR, Monaco	0730	
4895	La Voz del Rio Arauca, Colombia	0200	SS	9485	R. Prague, Czech Republic	2100	
4905	R. Anhanguera, Brazil	0000	PP	9505	R. Record, Brazil	2300	PP
4915	R. Cora, Peru	1100	SS	9510	R. Romania Int'l	0200	
4920	R. Quito, Ecuador	0300	SS	9510	R. Tashkent, Uzbekistan	1200	
4930	R. Internacional, Honduras	0300	SS	9530	R. Singapore Int'l	1100	
4955	R. Cultural, Brazil	0200	PP	9535	R. Japan	1400	
4970	R. Rumbos, Venezuela	0300	SS	9535	Swiss R. Int'l	1000	
4980	Ecos del Torbes, Venezuela	0300	SS	9540	R. Nacional Espana, Spain	0100	
4985	R. Brazil Central	0000	PP	9560	R. Jordan	1500	
5010	R. Garoua, Cameroon	0500		9570	R. Portugal	0230	
5010	R. Populares, Ecuador	0200	SS	9570	R. Romania Int'l	0230	
5025	R. Rebelde, Cuba	0300	SS	9575	Radio Medi Un, Morocco	0730	FF
5034v	RTV Centrafricaine, Central Af. Rep.	0500	FF	9580	R. Tirana, Albania	0330	
5035	R. Aparecida, Brazil	0100	PP	9580	Africa No. One, Gabon	2200	FF
5045	R. Clube do Para, Brazil	0100	PP	9580	R. Yugoslavia	0000	
5055	TIFC, Costa Rica	0400		9590	R. Netherlands via Bonaire	0500	SS
5056	RFO, Fr. Guiana	1000	FF	9590	R. Norway	1300	
5060	R. Nac. Progreso, Ecuador	0300	SS	9600	HCJB, Ecuador	0730	
5075	Caracol, Colombia	0300	SS	9610	AWR via Slovakia	0730	
5895	Croatian Radio	0800		9620	Spanish N'l Radio, via Costa Rica	0200	SS
5955	Caracol, Colombia	0900	SS	9645	Vatican Radio	0640	
5955	Channel Africa, S. Africa	0330		9645	TIFC, Costa Rica	0900	
5960	R. Japan, via Canada	0130		9650	R. Korea, S. Korea, via Canada	1130	
5975	BBC via Antigua	0100		9675	R. Japan via Fr. Guiana	0830	
6000	R. Guaiba, Brazil	0000	PP	9675	R. Cancao Nova, Brazil	2330	PP
6010	R. Havana Cuba	0030		9690	China Radio Int'l, via Spain	0300	
6010	R. Mil, Mexico	0700	SS	9695	Channel Africa, S. Africa	0500	
6015	R. Austria Int'l, via Canada	0530		9700	R. New Zealand Int'l	0800	
6030	R. Globo, Brazil	0900	PP	9710	BSKSA, Saudi Arabia	0300	AA
6030	R. Marti, USA	0600	SS	9725	RAI, Italy	0050	
6050	R. Nigeria	2230		9735	R. Nacional, Paraguay	0100	SS
6060	RAI, Italy	0300	II	9745	HCJB, Ecuador	0730	
6090	R. Bandeirantes, Brazil	0300	PP	9746	R. Bahrain	2130	AA
6095	Vatican Radio	0250		9750	R. Korea, S. Korea	1200	
6105	R. Universidad de Costa Rica	0300	SS	9755	Radio Canada Int'l	0000	

Freq.	Station/County	UTC	Notes	Freq.	Station/County	UTC	Notes
9765	V of Mediterranean, Malta	0630		13750	AWR, Costa Rica	1200	s/on
9770	R. Australia	1500		13750	Reshet Bet, Israel	1415	Yiddish
9770	V of UAE, Abu Dhabi	2300		13760	R. Pyongyang, N. Korea	0000	s/on
9779	Rep. of Yemen Radio	2100	AA	13770	WCSN-Monior Radio	2000	
9780	China Radio Int'l, via Mali	0300		15010	V of Vietnam	1200	
9800	R. France Int'l, via Fr. Guiana	0530	SS/FF	15020	All India Radio	1400	
9810	FEBA, Seychelles	1500		15030	RFPI, Costa Rica	2300	
9820	Radio Havana Cuba	0200	USB	15084	VOIRI, Iran	0100	Farsi
9830	Croatian Radio	0603		15095	R. Damascus, Syria	2030	
9840	R. Kuwait	2100	AA	15105	R. Moscow, Russia	1500	
9850	R. Sweden	0230		15140	R. Veritas Asia	1500	
9860	R. Ukraine Int'l	0330		15155	HCJB, Ecuador	0130	
9870	FEBA, Philippines	1000		15165	R. Havana Cuba	2145	
9880	R. Austria Int'l	0130		15168	R. Tahiti	0300	FF/TT
9885	Swiss R. Int'l	0100		15175	FEBA, Seychelles	1100	AA
9900	R. Cairo, Egypt	2230		15195	R. Ukraine	0030	
9910	All India Radio	1530		15200	R. Nacional Amazonas, Brazil	2300	PP
9925	R. Vlandereen Int'l, Belgium	2000	SS	15200	RFI, France via Fr. Guiana	2300	SS
9955	WRMI, Miami	0100		15235	V of Great Homeland, Libya	2000	AA
9965	KHBN, Palau	1330		15240	Channel Africa, S. Africa	1600	
9977	R. Pyongyang, N. Korea	1100		15240	R. Sweden	1330	
10060	V of Vietnam	0000	VV	15260	VOIRI, Iran	0030	
11470	V of Human Rights & Freedom for Iran	1730	AA	15270	HCJB, Ecuador	1930	
11550	RTV Tunisienne, Tunisia	1600	AA	15290	R. Dniester Int'l, Pridnestrovye	2030	
11570	R. Pakistan	1600		15310	BBC via Oman	1500	
11600	R. Cairo, Egypt	0200		15325	R. Japan via Fr. Guiana	0300	
11610	AWR, Solovakia	1700		15325	R. Canada Int'	2100	
11620	All India Radio	2000		15345	RTV Marocaine, Morocco	1800	AA
11645	Voice of Greece	1600	Greek	15345	RAE, Argentina	0200	SS
11660	Radio Australia	1500		15395	UAE Radio, Dubai	1330	AA
11665	R. Netherlands, Madagascar	0030		15400	R. Finland Int'l	1330	
11680	China Radio Int'l via Fr. Guiana	0400		15415	Libyan Jamahiriya Broadcasting	1430	AA
11690	FEBC, Philippines	1200	VV	15420	R. Tashkent, Uzbekistan	1200	
11710	RAE, Argentina	0200		15425	SLBC, Sri Lanka	1500	
11710	V of Turkey	2230		15430	Radio Japan	2300	
11715	China R. Int'l, via Mali	0300		15475	Africa Number One, Gabon	2100	FF
11720	R. Bulgaria	1900		15505	Swiss Radio Int'l	1500	
11725	R. Korea, S. Korea	1000	SS	15515	R. Portugal	1900	
11740	R. Vlaanderen Int'l	2330		15530	R. Australia	2200	II
11745	R. Tirana, Albania	0200		15550	R. Vlaanderen Int'l	1800	
11755	R. Finland Int'l	0130		15565	R. Australia	1200	
11765	RAI, Italy, via Ascension Is.	0130	II	15575	R. Korea, S. Korea	0030	
11780	R. Nacional Amazonia, Brazil	2200	PP	15610	KTWR, Guam	1500	
11785	Rdf. Nacional, Colombia	1900	SS	15630	V of Greece	1430	GG/EE
11785	R. Guaiba, Brazil	2330	PP	15640	Kol Israel	1400	
11800	R. Australia	1300		15675	R. Pakistan	1430	Urdu
11805	R. Moscow, Russia	2230		15675	R. Copan Int'l, Honduras	2300	SS
11810	R. Romania Int'l	1400		15770	ISBS, Iceland	1230	Icelandic
11815	Spanish Ntl Radio, via Costa Rica	0100	SS	17490	HCJB, Ecuador	1000	
11825	R. Tirana, Albania	2200		17500	RTV Tunisienne, Tunisia	1330	AA
11827	R. Tahiti	0300	FF/TT	17510	KWHR, Hawaii	2300	
11830	Vatican Radio	2230		17535	V of Greece	1430	GG/EE
11840	R. Japan	1100	JJ	17590	R. Finland	1430	
11855	KSDA, Guam	1300		17605	R. Netherlands	1930	
11870	R. Yugoslavia	0000		17620	R. France Int'l	1600	
11875	R. Canada Int'l	2200		17625	R. Bulgaria	1230	
11880	R. Japan via Fr. Guiana	0300		17630	Africa No. One, Gabon	1430	FF
11885	UAE Radio, Abu Dhabi	2300		17655	R. Netherlands via Bonaire	1830	
11900	R. Finland Int'l	1230		17670	Swiss Radio Int'l	1500	
11905	R. Universo, Brazil	2330	PP	17695	R. France Int'l	1400	
11915	R. Gaucha, Brazil	0000	PP	17740	R. Finland Int'l	1430	
11925	HCJB, Ecuador	0600		17745	R. Algiers, Algeria	1930	
11925	V of Mediterranean, Malta	1400		17745	R. Tashkent, Uzbekistan	1200	
11945	R. Canada Int'l	2100		17760	R. Havana Cuba	2130	
11990	R. Kuwait	1800		17775	R. Romania Int'l	1300	
11995	FEBC, Philippines	1400		17790	HCJB, Ecuador	2130	
12000	R. Jordan	0500	AA	17805	R. Romania Int'l	1730	
12025	KTWR, Guam	1500		17810	R. Japan	2300	
12025	R. Netherlands via Alma Ata	0030		17820	R. Canada Int'l	1300	
12085	R. Damascus, Syria	2030		17845	Spanish National Radio	1500	SS
13580	R. Prague, Czechoslovakia	1500		17870	R. Sweden	1500	
13605	Capitol Radio via UAE, Abu Dhabi	2230		17875	R. Canada Int'l	2030	
13615	R. Bangladesh	1230		17880	R. Finland Int'l	1300	
13620	R. Kuwait	2000		17890	Spanish National R., via Costa Rica	2130	SS
13625	KWHR, Hawaii	1800		17900	R. Portugal	2000	PP
13640	R. France Int'l	1200		21455	HCJB, Ecuador	1330	
13660	R. Havana Cuba	0200	USB, EE	21515	R. Portugal	1500	PP
13670	R. Canada Int'l	2030		21520	R. Pakistan	1100	
13675	UAE Radio, Dubai	1630		21590	R. Netherlands, Bonaire	1800	
13680	VOA via Bulgaria	1800		21605	UAE Radio, Dubai	1430	AA
13715	R. Havana Cuba	2200	SS, USB	21605	R. Yugoslavia	1230	
13720	AWR, Guam	1600	non EE	21740	R. Australia	2330	

tographic equipment. The accompanying photo shows Kirk's site in New Mexico, and he sent along an enjoyable letter describing his efforts.

Kirk planned his listening efforts well, selecting 1020, 1080, 1170, and 1200 kHz for his monitoring, which were the frequencies for KCKN in Roswell, NM, KRLD in Dallas, TX, KVOO, Tulsa, OK, and WOAI in San Antonio, TX, respectively. These frequencies were clear of interference on the same and adjacent channels, and the stations were running high power. Kirk spent time both visually observing the eclipse and checking the four frequencies.

KCKN was located about 210 miles from his location, but by mid-morning, it had faded to the point where the signal was audible but not moving his receiver's S-meter. As the eclipse progressed, KCKN's signal began to increase. Kirk said, "this increase was not steady but rather involved a considerable slow strengthening and weakening that one sees during evening and nighttime reception." KCKN's signal rose to a level of "4" to "8" on the S-meter for about 40 minutes beginning about 10 minutes before annularity at his location (which began at 10:08 a.m. Mountain time). By 11:04 a.m., KCKN had returned to its normal daytime level.

This pattern held on the other frequencies. Frequency 1170 kHz was empty at the beginning of the eclipse. At 9:54 a.m., he heard a Spanish language station fading in on the frequency. At 10:24, KVOO became audible. The signal peaked at about S4 at 10:29, but faded out completely ten minutes later. Kirk noted, "listening to KVOO was interesting because the station's announcers were discussing the eclipse when I was hearing them most clearly. It was amusing to think that the eclipse which so interested the announcers was actually allowing me to hear them discussing it."

On 1200 kHz, only a weak carrier was heard until 9:59 a.m., when a Spanish language station began to fade in. At 10:04, WOAI began to fade in and became the only signal on 1200 kHz from 10:19 to 10:29, fading afterwards until it was completely gone by 10:34. Frequency 1080 was a jumble of at least two signals when the eclipse began, but a Spanish language station began to fade in as the eclipse progressed. Several minutes after annularity at Kirk's location, KRLD in Dallas began to become audible. While KRLD's signal was never strong, it was the dominant signal on the channel for about 15 minutes before fading away.

I want to thank Kirk for sharing the results of his DXpedition with the other readers of POP'COMM!

Results and the Future

The May, 1994 eclipse exceeded my expectations! Frankly, I didn't expect the degree of reception enhancement to be as great as it was. From these reports, it's clear that the degree of enhancement was almost as great as for a total eclipse, and that conditions similar to sunrise and sunset were experienced across a large chunk of North America. DXers like Kirk Wines truly made some once in a lifetime receptions!

So when's the next eclipse? Let's see... on February 16, 1998, there will be a total solar eclipse whose path crosses northern Colombia and Venezuela and into the Caribbean...on August 11, 1999 a total eclipse will be visible from southern England into France, German, the Black Sea, and well into central India...but it's not until August 21, 2017 that we have another total solar eclipse visible in the United States. This will be a good one, with the path of totality entering the United States in Oregon and the sweeping across the country until exiting off the South Carolina coast. At least we all have a lot of time to get ready!



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CIRCLE 70 ON READER SERVICE CARD

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



New Scanner Covers Shortwave to Microwave

Trident offers a new receiver capable of receiving virtually any voice transmission.

The frequency coverage of the unit allows reception of the radio frequency spectrum from below AM broadcast to above the new Personal Communications services in the microwave range. Users can tune in to nearly every kind of voice broadcast from all over the world.

The demodulation modes of the unit are: AM for broadcast and world band radio, plus civil and military aviation; narrow FM for police, fire and emergency transmissions; wide FM for radio and TV audio broadcasts; plus single side band for transoceanic aircraft and ships at sea.

Housed in a compact and portable handheld case, the new Trident unit earned Innovations '94 honors awarded by the Electronic Industries Association to the most innovative electronic products of 1994.

Users can operate the unit by pressing in desired frequencies through a convenient keypad. All entries are displayed in a backlit liquid crystal display. If the desired frequencies are unknown, the unit will search for active channels and allows users to store those broadcasts in any of the 1000 permanent memory locations. Up to 10 different search ranges can be set entered into the unit's memory by the user.

Technical details include frequency coverage from 100 kHz to 2.060 GHz. Power is supplied by four AA batteries. Tuning increments are selectable in steps as low as 1,000 cycles per second, which allows extremely accurate signal detection. The unit will scan through memorized frequencies at up to 25 channels per second, and will

lock on active calls to receive the broadcast. Audio is heard through the built-in speaker or supplied earphone.

A manufacturer's suggested retail price of \$799 has been set for the unit, including a 12-volt DC cigarette lighter plug, AC battery charger, four AA batteries, earphone, built-in speaker, belt clip, flexible antenna, mounting hardware, and operating instructions with a listing of allocating uses for all the covered frequencies.

This compact unit measures 5 7/8 inches in height, 2 inches in width, and 1 1/2 inches in depth, and weighs 14 ounces.

For more information contact ACI. Tsnao Izumi, 800-445-7717, or (317) 849-2570, or FAX 800-448-1084, or (317) 849-8794, or circle 101 on our Readers' Service.



ICOM Introduces IC-820H All-Mode Dual Band Transceiver

ICOM announces the IC-820H high performance all-mode dual band base station transceiver. The IC-820H is compact and light weight, making it ideal rig for mobile, fixed or field operation. Yet the IC-820H is packed with top performance features unmatched by other base station transceivers including a newly designed DDS (Digital Direct Synthesizer) capable of resolving 1 Hz tuning steps for fine tuning.

Built-in satellite functions include normal and reverse tracking, independent uplink/downlink control for Doppler shift compensation and separate satellite VFO. Ten satellite memories allow you to quickly switch from normal to satellite operation, plus easily recall satellite uplink and downlink frequencies.

Independent controls and indicators for each band make the IC-820H easy to operate. To change from the main band to the sub-band, simply push a button. You can even receive simultaneous signals on each band and monitor the signal strength of both signals on separate S-meters.

Tune automatically at variable tuning speeds by using the sub-tuning function and RIT or SHIFT control. This eliminates the need to rotate the main tuning dial fre-

quently when trying to find a signal over a wide frequency range.

The IC-820H covers from 144 to 148 MHz VHF and 430 to 450 MHz UHF. Both bands have two VFO's.

Other features include IF shift that electronically adjusts the center frequency of the receiver pass-band for effective interference reduction and a noise blanker to eliminate pulse-type noise. A memory allocation function divides memories between bands. The IC-820H has an AF speech compressor, auto repeater and one-touch repeater functions, built-in high stability crystal unit, RIT, CW semi break-in and side tone.

Programmed scan, memory scan and mode select scan are also included in the IC-820H. Packet operation (9600 bps) is possible with the modulation limiter circuit.

Options include a UT-50 tone squelch unit, UT-36 voice synthesizer and FL-T32 CW narrow filter.

The suggested retail price for the IC-820H is \$1,999. For further information, please contact your local ICOM amateur radio dealer or ICOM America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, (206) 454-8155, or circle 102 on our Readers' Service. ■

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WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Let's kick the show off this month with a warm welcome to Jeff White and his Radio Miami International (WRMI) which has, at last, begun broadcasting on a regular basis. WRMI's initial schedule was 0100 to 0400, but that has undoubtedly been increased by now. WRMI's "flagship" program is called "Viva Miami!" and includes "information, interviews, music and entertainment from and about Miami and the State of Florida," according to the station. It also features stories about international travel, responses to listener mail, DX items and tropical weather updates. The first half hour of Viva Miami! (at 0100) is in English, the second half hour in Spanish.

WRMI uses 50 kW and operates on 9955 kHz. Send comments and reception reports to 8500 SW 8 Street, Suite 252, Miami, Florida 33144.

For the pure DX'er it's hard to top the news of the return of the Maldive Islands to shortwave after an absence of many years. Reports say that the Voice of the Maldives (some reports say it's Radio Maldives) has been testing between 0400 and 0800 on 7350. So far, the programming is a relay of the domestic service with some station IDs in English thrown in. Let's hope this is not only permanent, but that a time/frequency combo more suitable for reception here is eventually chosen.

For many years Central America was a pretty quiet place as far as shortwave activity was concerned (although in the 40's and 50's there were many stations active). The past few years have brought a noticeable increase in the number of stations. A few months ago Radio Internacional (4930) came on the air from Honduras. Now there's another new shortwave signal from that country. Radio Emanuel, on 4960 plus a fraction, is a religious broadcaster located in the town of Ocotepeque with call letters HREM. It is relaying its 1510 kHz medium wave outlet through sign off a few minutes past 0200. All in Spanish (or Spanish plus indigenous languages) of course. Our two star lady reporters—Sheryl Paszkiewicz and Marie Lamb—came up with this one. Nice going!

A couple of shortwave setbacks in Africa: the planned construction of a Radio France International Relay in Djibouti has been placed on hold, as has the planned expansion into Cote D'Ivoire (Ivory Coast) of Africa Number One.

Radio Australia is expanding. Two new high power transmitters have been added at the Darwin site while five new antennas have been installed at Shepparton.

Radio Thailand is now supposed to have begun use of the Voice of America's Thai relay station, which currently has seven-



Belgium's Radio Vlaanderen sent this sticker to Larry Blisard, PA.

500 kW units. The expanded schedule to the United States (in English) is during our evening period—0100 to 0600. Other segments include 1900-2000 and 2100-2200 to Europe, 2200-2300 to central Africa, 0000-0100 to southern Africa. Beams to Asia go out between 1000-1700. Information on frequencies wasn't available at deadline.

Apparently we haven't yet seen the last entry in the USA shortwave station parade. Word is a 50 kW shortwave station has been granted in the state of Georgia and there still may be more to come.

Here's another juicy target to test your DX mettle. The Uruguayan broadcaster, SODRE, is testing a service for people at the Uruguayan scientific base in Antarctica. Programs run between 1000-1600 daily, 1400-1500 and 1800-2200 Saturdays and Sundays. The tests are on 6010, lower sideband. If the tests are judged successful SODRE expects to begin transmissions somewhere in the 25 meter band.

Though it made for easy reception here, Papua New Guinea's use of 9675 didn't end up so beneficial for us after all.

When use of 9675 began it was during our morning hours, making for good reception. But Port Morseby changed the rules (and their schedule). The old 4890 frequency is back in use (at 2000-2200 and 0700-1400, while 9675 is on between 2200 and 0700.

It's kind of hard to miss English broadcasts from the likes of the BBC, Deutsche Welle, Radio Netherlands and many others. Just tune around the bands a bit and you'll run into something pretty quickly. There's a long list of other countries on the air with English you have to seek out, and many, if not all, are tough to catch. Here's some recent data on several of these:

Radio Algiers (Algeria) at 1600 to 1700 on 15160 and 17745.

National Voice of Cambodia is on 11940 (sometimes slipping down one or



Sue Wilden does her monitoring from Columbus, Indiana.

Morse Code

150th Anniversary

A	..- .
B	-... .
C	-.-. -.-.
D	-.. -..
E	. .
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V	... -.-
W	-.- .-
X	-.- -.-
Y	-.- .-.-
Z	-.- -.-

AWR

Adventist World Radio has issued a special QSL card to commemorate the 150th anniversary of the Morse Code. The card shows both the original and modern versions.

RADIO FRANCE INTERNATIONALE : 24 H SUR 24, SUR ONDES COURTES



This map from RFI shows their relays. (Sent by Larry Blisard.)

two kHz) at 1200 to 1215 and 0000-0015.

Trans World Radio, Monaco has English on 7385 from 0640 to 0845.

Radio Yerevan, Armenia - 2130 and 2230 on 11790, 11920, 11945.

Radio Bangladesh has English from 1230-1300 on 13620.

Georgian Radio - 0530 to 0600 and 0700-0730 on 11910.

Radio Course—An "Introduction to Shortwave Listening" course is being held in Canada again in 1994-95. Taught by veteran SWL Stephen Canney (VA3ID) the course will be underway until mid-November at Sheridan College, Oakville and Centen-

nial College, Scarborough (both Toronto suburbs). If you live in that area you can still sign up for the second session at either site—they'll start in April and run 'til June. You can call Mr. Canney at (416) 222-9658 for more info.

How is it that Monitor Radio's programming comes to be on the longwave band? It's got Sue Wilden of Columbus, Indiana puzzled—and me as well. Sue said she got a definite ID on 159 kHz. We're featuring Sue's shack this month, which includes a Sangean ATS803, Realistic 2011 and Pro-46 receivers. Thanks for the pic Sue!

Thanks to Larry Blisard in Pennsylvania who sent a big fistful of things we can use as illustrations.

Your loggings are welcome, wanted, and encouraged. We'd like a lot more of them, in fact! All we ask is that you list your items by country and include your last name and state abbreviation after each one. These get cut into strips, loggings without names become unusable—or at least we can't give you credit for them.

Don't forget how much we'd like to include a shot of your shack, too (with or without your smiling face). Also encouraged are station schedules, other literature, and QSL cards you don't need returned. Thanks!

Here are this month's loggings. All times are in UTC, which is five hours ahead of Eastern Standard Time (0000 UTC=7pm EST, 6pm CST, 4pm PST). The language

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broadcast is assumed to be English (EE) unless indicated otherwise (FF=French, PP=Portuguese, RR=Russian, etc.)

ALASKA - KNLS, 7365 at 1220 with announcer in CC, ID in EE at 1230. (Northrup, MO) 9615 at 0844 with ID, interviews. Into RR at 0902. (Lamb, NY)

ANTIGUA - BBC relay, 5975 with feature on Buddha at 0239. (Blisard, PA)

AUSTRALIA - ABC/CAAMA Radio, Alice Springs (presumed) 4835 at 0825 with pops, mention of Australia and off at 0829. (Lamb, NY)

Radio Australia, 5995 at 1215, 6060 at 1200, 6080 at 1220, 9560 at 1205, 9580 at 1220 and 9710 at 1310, all in EE except 9710 which was in Chinese. (Northrup, MO) 9580 at 1130. (Blisard, PA) 11720 at 0730 with "At Your Request." (Foss, AK) 17860 with sports report. (Wilden, IN)

BELGIUM - Radio Vlaanderen Int'l, 11695 at 0742 with opera. (Foss, AK) 15545 at 1300 with news.

(Blisard, PA) 15550 at 1813 with interview, African and instrumental music. Into FF with ID at 1830. (Lamb, NY)

BOTSWANA - Voice of America relay, 7280 at 0445 with "Daybreak Africa." (Kohl, IA)

BRAZIL - Radio Record, 9505, presumed, at 1220 in PP with telephone report. (Northrup, MO)

Radio Timbira, 4974.9 at 0140 with drama, ID, commercial, announcements, mention of Brazil. All in PP. (Paszkievicz, WI)

Radio Clube Paranaense, 6040.4 at 0920 with sound effects, "bom dia" several times, ID, mention of "ondas curtas." (Paszkievicz, WI)

Radio Brazil Central, 4985 in PP at 0330 with vocals, ID, time check, jingles, sound effects, mention of Goiania. (Paszkievicz, WI)

Radiobras, 15445 at 1305 with lots of Brazilian music, station IDs, news. (Blisard, PA)

BULGARIA - Radio Bulgaria, 9700 at 0330 with ID, schedule, news, business and finance, interview. (Blisard, PA)

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies



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CIRCLE 79 ON READER SERVICE CARD

CANADA - Canadian Forces Network, via RCI, 6120 at 0215 with taped messages to Canadian military personnel in Bosnia. (Wilden, IN)

CHNX, 6130, relay of CHNS-Halifax, 1845 with commercials for Black and Decker outlet and carpet auction, ID, oldies. (Lamb, NY)

CFRX, 6070, relay CFRB Toronto at 1418 with talk show. (Blisard, PA)

CBC Northern Service, 9625 at 1254 with "As it Happens." (Blisard, PA)

CHU time station, 3330 at 0335 and 7335 at 0334. (Wilden, IN)

Radio Canada Int'l, 11875 at 2222. (Hams, TN)

CHINA - China Radio Int'l, 9550 at 1215 in SS, 9655 at 1215, 9665 at 1210 in CC, 9670 at 1315 in CC. (Northrup, MO) 9690 (via Spain, editor), 0300 with news. (Wilden, IN) 9780 via Mali at 0023 with discussion on prisons and prison work farms in China (Blisard, PA)

COLOMBIA - La Voz de la Selva, 6170.9, 0449 in SS with choral vocals, ID, time checks, Big Ben chimes, news, jingles. (Paszkievicz, WI)

COSTA RICA - Radio For Peace Int'l, 7375 at 0103. (Harris, TN) 0804 in SS. (Foss, AK)

CUBA - Radio Havana Cuba on 6010 at 0051 and 0245. (Blisard, PA) 9820 at 0401, news with empha-



This colorful QSL from Radio France International shows the Pyramid at The Louvre. (Thanks Larry Blisard.)



Larry Blisard got this pennant from the Voice of Turkey.

sis on African items. (Wilden, IN) 17705 in SS at 2232. (Harris, TN)

CYPRUS - BBC relay, 9740 at 1305 with news. (Northrup, MO)

CZECH REPUBLIC - Radio Prague, 9845//11745 at 0012 with press review. (Blisard, PA)

ECUADOR - Radio Quito, 4920 at 0451 in SS with promos, talks, frequency announcement, usual "Indian Love Call" sign off music. Off at 0502. (Lamb, NY)

ENGLAND - BBC, 5975 (via Antigua, editor) at 2302, 6175 (via Canada, editor) at 2305 and 9590 (via Canada) at 0007. (Harris, TN) 9515 (via Canada, editor) at 1215 with "Multitracks" and 9580 (probably via Hong Kong, editor) in CC at 1220. (Northrup, MO) 9515 via Canada at 1247 and 9590 via Canada at 0007. (Blisard, PA)

FINLAND - Radio Finland Int'l, 15400 at 1330 with "Focus." Closed with news in Latin. (Kohl, IA)

FRANCE - Radio France Int'l, 9650 at 1220, 17850 at 1235 in FF. (Northrup, MO) 13640 at 1237 with news features. (Blisard, PA)

FRENCH GUIANA - Radio France Int'l relay on new 13625 at 1200 with time check, ID, news, "RFI Europe." Parallel to 15190 (or 15195? Marie? Your fax didn't print completely), 13640, 15155, 15325 (Gabon), 17575. (Lamb, NY) 17860 at 1220 in FF. (Northrup, MO)

GERMANY - Deutsche Welle, 7285 at 0209 with news, "Asia Pacific Report." (Blisard, PA) 9580 at 0206 (via Portugal, editor). (Harris, TN) 17765 at 1230 with frequency announcement in GG. (Northrup, MO)

GREECE - Voice of Greece, 9380 at 0133. (Harris, TN) 0340. (Low, TX) 9420//11645 with EE news. (Kohl, IA) (0130 or 0340? editor)

GUATEMALA - La Voz de Nahuala, presumed, 5041 at 0819 in SS with jingles, news, phone talk, possible ID. (Lamb, NY)

HAWAII - KWHR, 17510 at 0247 asking for money to buy rice for the needy. (Blisard, PA)

HCJB - 9745 at 0754 with "DX Party Line." (Pappas, SD) 9765 at 1225 in SS with news. (Northrup, MO) 11925 at 0044. (Harris, TN) 1203 with music, Latin American and world news. (Blisard, PA)

15270 at 1909 with "DX Party Line." Announced new 10 minute DX show at 0400 UTC-Thursdays. (Low, TX)

HONDURAS - NEW Radio Emanuel, HREM,

4960 at 0151 in SS with IDs, call, contemporary Christian music, religious talks. Relay of their 1510 medium wave outlet. Off at 0207. (Paszkievicz, WI) (Congrats on being the first to spot this one, Sheryl!)

HUNGARY - Radio Budapest, 9835 at 0122 with info about a wine festival. (Kohl, IA) 0254, interview. (Blisard, PA)

INDONESIA - Radio Republik Indonesia, Sorong, Irian Jaya, 4874.6 in II with domestic music at 0928. (Foss, AK)

ISRAEL - Kol Israel, 9435//11605 at 0401 with news, ID, sports scores, weather. Into FF at 0415. (Lamb, NY)

ITALY - RAI, 9725 at 0056. (Harris, TN) Here and on parallel 11800 at 0048 with pops; into bell IS and EE news at 0050, IDs, more Italian pops. (Lamb, NY) Also 11800 at 2027 with ID, political news, fashions, films, sports, Italian pops. (Lamb, NY)

11800 at 0100. (Kohl, IA)

JAPAN - Radio Tampa, 3925 in JJ at 0850 with rock in JJ.

(Foss, AK) 6055//9595 at 0847 in JJ with pops, talks, ID, news. (Lamb, NY)

Radio Japan, 9750 at 0839 with interview in JJ. (Foss, AK) 11705, via Canada, at 1416 with "Current Views." (Blisard, PA)

LITHUANIA - Radio Vilnius, 11770 at 2300. (Harris, TN)

MEXICO - Radio Educacion, 6185 at 0445 in SS/EE with bi-lingual IDs and time checks, Mexican music, call letters, slogan "Your friendly frequency in Mexico City." (Lamb, NY)

MOLDOVA - Radio Dniester Int'l, 15290 at 2030-2100 with tones, IS, full ID, news, sports, presidential speech, letters and address. (Paszkievicz, WI)

MOROCCO - VOA relay, 15205 at 2009 with news ending and into "Music USA Jazz" with Willis Conover. Also 15410//15445 at 1958 with jazz, "Africa World Tonight" (Lamb, NY)

NETHERLANDS - Radio Netherlands, 9840 at 0117. (Harris, TN)

NIGER - La Voz du Sahel, 5020 at 0539 in FF with African music, flute and drums leading to news. (Lamb, NY)

NIGERIA - Voice of Nigeria, 7255 at 2116 in FF with reggae, African music, ID. (Lamb, NY) 0500 with drums, anthem, IS, sign on and "Wave Train" program. (Kohl, IA)

NORTH KOREA - Radio Pyongyang, 7580 at 1210 in KK. Weak. (Northrup, MO)

PERU - Radio Union, 6115 at 0502 in SS with children's choir, ID, sound effects, music. (Lamb, NY)

PHILIPPINES - VOA relay, 15150 at 0811 in RR. (Foss, AK)

ROMANIA - Radio Romania Int'l, 9510 at 0200; 0227. (Kohl, IA; Blisard, PA) 9690//11940 at 1856 with IS, EE program, news, ID, "World Trade '94" and "Cultural Survey." (Lamb, NY)

RUSSIA - Radio Moscow, USB feeder on 7490 via Khabarovsk at 0823. (Foss, AK) 9530 at 0231 with news, 11805 at 0030 with news, 15105//15290 with classical music. (Blisard, PA) 11805 at 2238. (Harris, TN) 0120 with classical music to news at 0200. (Wilden, TN)

SLOVAKIA - Slovak Radio, 9530 at 0100 with IS, ID, news, talk on history. (Kohl, IA)

SOLOMON ISLANDS - SIBC, 5020 at 0809 with religious music, commercial for Sunshine Milk and public service announcement for "Year of the Family." (Foss, AK)

SPAIN - Spanish National Radio, 9540 at 0049; 0100 with news. (Harris, TN; Kohl, IA) 0500 with news, profile of Seville, letters. (Pappas, SD) 0513 with "Panorama" program. (Wilden, IN)

9630 in SS at 1215. (Northrup, MO) 12035//17715//17775//17870 at 1844 in SS with soccer scores, ID, remote report, bluegrass. (Lamb, NY)

SWEDEN - Radio Sweden, 6040 at 0256 with features. (Blisard, PA) 9810, new for Latin America, in EE at 0052 with "Media Scan/Sweden Calling DXers." (Lamb, NY) 15240//17870 with "Stand Up Sweden" comedy show. (Kohl, IA)

SWITZERLAND - Swiss Radio Int'l, 6135//9860//9885 with talk about a western filmed in Sweden, ID at 0429 and into FF at 0430. (Pappas, SD) 13635 at 1508 with "Grapevine." (Wilden, IN)

SYRIA - Radio Damascus, 15095 at 2030 with news, music, press review. (Kohl, IA)

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This poster from Radio Korea can be folded into a convenient station brochure. (Thanks again Larry Blisard.)

TAHITI - Radio Tahiti, 11827//15168 at 0526 in FF with island music. (Lamb, NY) 15170 at 0800 with news, music. Man and woman hosts in FF. (Foss, AK)

TAIWAN - Voice of Free China, via WYFR. 5950 at 0202; 0234. (Harris, TN; Blisard, PA) 15125 direct, in CC at 0814. (Foss, AK)

TUNISIA - RTT Tunisienne, presumed, 7475 at 0513 in AA with news, possible ID, mid-east music, announcer with echo. (Lamb, NY)

TURKEY - Voice of Turkey, 9445 at 0400 with piano IS, news, Turkish Press Review, music. (Kohl, IA)

UNIDENTIFIED - 3880 at 0938 with rock. (Foss, AK) A new station on this frequency is Radio United Bougainville, run by the Papua New Guinea government as an answer to the Radio Free Bougainville clandestine station. It operates to past 1200 and does play some pop stuff. (Editor)

UNITED ARAB EMIRATES - UAE Radio, Dubai, 9605 at 2315 with news, info on recycling. (Kohl, IA)

UNITED STATES - Radio Marti, to Cuba, 11930 in SS at 2002. (Harris, TN)

VATICAN - Vatican Radio, 5882 at 0506 in unidentified language with classical music. talks. IS and

off at 0510. (Lamb, NY) 7305 at 0259 with "The Pope and the People" - a look back at the assassination attempt on the Pope. (Blisard, PA)

YUGOSLAVIA - Radio Yugoslavia, 9580//11870 at 0016 about the bad effects of lifting the arms embargo. (Blisard, PA) 9595 at 2102 with news of the Balkans, ID, jingle, commentary. (Lamb, NY)

And that's all they wrote for this month! A hearty handshake and thank you to the following who got it done this time:

Marie Lamb, Brewerton, NY; Larry Blisard, Brookhaven, PA;

Sue Wilden, Columbus, IN; Marty Foss, Wasilla, AK; Tod Kohl, Cedar Rapids, IA; Marina Pappas, Huron, SD; Sheryl Paszkiewicz, Manitowoc, WI; Mark A. Northrup, Gladstone, MO; Paul Harris, Columbia, TN and Brad Low, Jacksonville, TN. Thanks to each of you!

Until next month - good listening! ■

FOCUS ON FREE RADIO BROADCASTING

Here we go once again with info on what's being heard in the world of short-wave radio pirate stations. Sometimes you have to hunt a bit, and usually you need more than a little patience, but there are interesting things to hear every weekend!

A new one, Voice of the Real World was heard by George Roberts, in Pennsylvania, on 7385 upper sideband from tune in at 0310. The announcer had a "faked up" voice quality (I'm not sure what you mean by that, George!) and the program flavor seemed on a politically conservative bent. Included a talk on an environmental topic, along with rock music. George says he didn't catch an address or mail drop.

Roberts grabbed another new one, Up Against the Wall Radio, also on 7385, and upper sideband, heard at 0055. It may have been on the same frequency as "Real World" but an opposite political bent—the far left. They included a lot of 70s rock (Grateful Dead and others) and announced the Wellsville, NY mail drop (P.O. Box 452, zip 14895). George says he got the impression they are going to be pretty picky about issuing QSLs (I wonder how smart a policy like that really is? There are those out there who see QSLs as the only legit reason for the existence of pirates!—Ed).

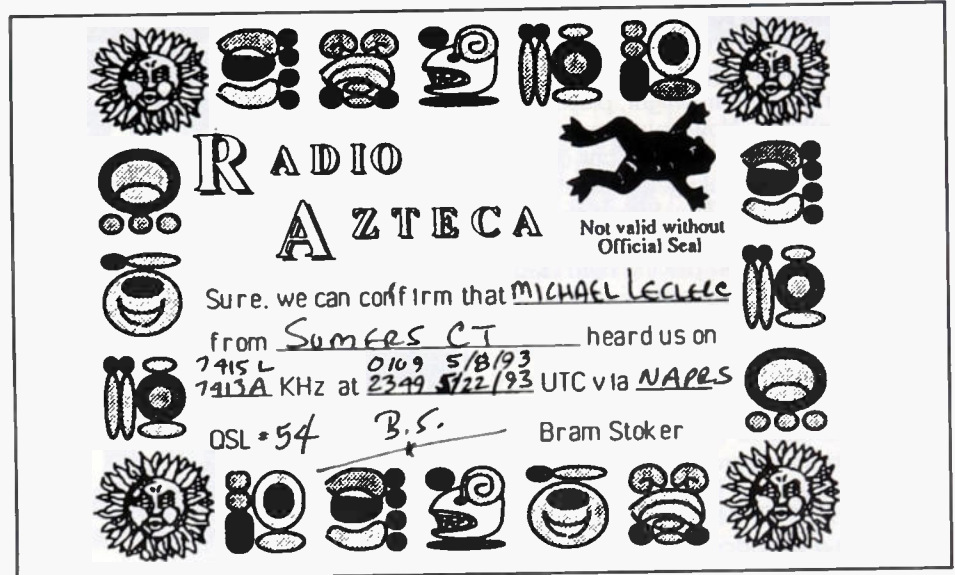
Still another station operating on 7385 recently—WEED was heard by Harry Betts, in Illinois, running to a sign off at 0453. The program included lots of rock and pro-marijuana comments. The announced address is P.O. Box 605, Huntsville, AL 35804.

Buckeye Radio was logged by Dick Wilkie, in Ohio, on 7485, tune in at 2210 and announcing as located in the Ohio Valley. Uses the slogan "Voice of the Ohio Valley" and playing the Go-Go's song, "We Got the Beat." No address heard.

Radio Airplane is still active and was picked up by Jack Sheldon in Michigan on 7385, variable, around 0110. Complete with the usual host, Captain Eddy and a variety of music, funny bits and listener mail. Still using the Wellsville address. Also heard at about the same time by Harry Betts, Illinois, with a parody commercial about "Honesty Airlines."

Radio Azteca, is still another station using 7385 (although a bit variable). It was heard by Sheldon with Bram Stoker doing a takeoff on DXing, also a feature/parody called "Ask Dr. Radio," a mailbag show and other goings on.

WLIS (We Love Interval Signals) was logged on 7416 at 0140 with various radio station interval signals played. They announced the Blue Ridge Summit mail drop (P.O. Box 109, zip—17214)—that's Pennsylvania, of course. (Sorry, I misplaced the reporter's name for this one!—Ed).



Radio Azteca, recently heard on 7385, sends this QSL card. (Thanks to Mike Leclerc)

WJLR was found on 7415 upper sideband at 0110 by Roberts with various (older) pop and rock songs. It was announced as being the last broadcast "ever" and concluded at 0140. He announced the Blue Ridge Summit address.

Voice of Laryngitis, heard by Sheldon on 7385 upper sideband at 0020 with various comedy and parody bits, included humorous, fake commercials and digs at the FCC. Remarks that "when you hear the cry of the seal, you're listening to the Voice of Laryngitis." Also a mention of Reverend Billy Bob (one of the station's main features—Ed). Says the Blue Ridge Summit address.

Radio Magic was heard by Betts (I think a relay via the North American Pirate Relay Service—Ed) on 7385 from 0130 sign on to 0155 off, playing a lot of hard rock stuff and announcing an address in the city of Perm (Russia). They even had an announcement of some kind in Spanish. (This one originates in Russia—Ed.)

International Voice of Global Free Radio was heard by Bryon Feeder in New Jersey,

on 3400 at 0400. They played several pop songs and the program was hosted by "Ira, the Radio Pirate." Also had some bogus commercials. Bryon suggests they should move up to the 7 MHz pirate area as their signal on 3400 was not only weak, but suffering from a high noise level. They gave the Wellsville address for reports.

Radio Doomsday, was logged by Feeder at 0720 on 7445 upper sideband with a host called "Nemesis" and some political comments about the constitution and free speech, etc. Also some sort of science fiction play or excerpt or something. Announces the Wellsville address.

Your reports are something I always appreciate and always look forward to receiving! I'm sorry that it is only rarely possible to reply to or directly acknowledge receipt of your letters but that's the way we must play this particular game. Please don't take that to mean they aren't very welcome! Keep 'em coming!

That's the size of things for now—I'll have more pirate news for you next month!



Radio Airplane sent this card to Mike Leclerc in Connecticut

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Star Spangled Radio: Larry Seabury, of Lake Worth, Fla., wrote to say that he recalls many years ago when many local AM'ers signed off at midnight, playing the national anthem. Now, observes Larry, with so many AM and FM stations operating full time, you rarely get to hear those rousing versions of *The Star Spangled Banner* on the radio. However, WTMI/93.1, a Miami station playing both classical and jazz music, has taken notice of the loss of this old broadcasting tradition. Every day, at exactly noon, WTMI plays a stirring rendition of *The Star Spangled Banner* in its entirety. Now a local company has stepped forward to sponsor this popular daily feature to ensure its continuation.

Larry writes that he never misses our column in *POP'COMM*.

Visit to a Broadcaster: Jimmy Poole, Amateur AA5YL, and Registered Monitor KAR5BR, is the Chief Engineer at AM station KWHN and FM'er KMAG, Fort Smith, Ark. Luckily for us, like many broadcasters, Jimmy's also a *POP'COMM* reader. So he was kind enough to give our readers an interesting behind-the-scenes outline of his stations.



The sticker from KWHN/1320 represents the news/talk station in Fort Smith, Ark.

KWHN/1320 runs 5 kW non-directional daytime, but at night the 5 kW is fed into a four-tower directional array. The transmitter is a Collins 21-E which dates from about 1960.

KMAG/99.1 has 100 kW erp with an 8-bay ERI "rototiller" circular polarization antenna. The antenna site is atop the world's highest hill, Cavanal Hill, in Poteau, Okla. The main transmitter is a McMartin

Changed Call Letters

New	Was	
KBLD	KBCO	Boulder, CO
KCSI	KOAK	Red Oak, IA
KEGE	KRXX	Minneapolis, MN
KJSL	KXOK	St. Louis, MO
KKLQ	KGMG	Oceanside, CA
KPIX	KKHI	San Francisco, CA
KWRN	KAPL	Apple Valley, CA
WDLP	WPCF	Panama City, FL
WEPC	WAFZ	Belton, SC
WEZS	WLNH	Laconia, NH
WIST	WCNV	Charlotte, NC
WMFA	WHIL	Raeford, NC
WOKV	WPDQ	Jacksonville, FL
WPFJ	WAJA	Franklin, NC
WRWB	WSVQ	Harrogate, TN

Changed FM Call Letters

New	Was	
KALC	KAKL	Denver, CO
KCBI	KCBI-FM	Dallas, TX
KCVS	KKCR	Salina, KS
KEGE-FM	KEGE	Minneapolis, MN
KKPT	KHLT	Little Rock, AR
KLLT	KVYV	Vinton, IA
KLTH	KACJ	Boonville, MO
KNYR	KAIG	Yreka, CA
KRAZ	KMAT	Sutter Creek, CA
KTCO	WAKX	Duluth, MN
KVRG	KMBY-FM	Seaside, CA
KWAK-FM	KXDX	Stuttgart, AR
KXPW	KNJS	Belle Plaine, IA
KZFO	KXMX	Madera, CA
KZME	KAHG	Hudson, IA
WAEG	WYFZ	Evans, GA
WAEJ	WAGW	Waynesboro, GA
WBYT	WLTA	Elkhart, IN
WDOL	WZJX	Englewood, OH
WIBM	WIBM-FM	Jackson, MI
WIFF-FM	WGTB	Auburn, IN
WJBW	WADY	Jupiter, FL
WKOA	WASK-FM	Lafayette, IN
WMXF	WMLI	Sauk City, WI
WNFZ	WKNF-FM	Oak Ridge, TN
WQLL	WHKW	Louisville, KY
WRQT	WMNW	Beulah, WI
WRRW	WJWL	Bartlett, TN
WSMD-FM	WSMD	Mechanicsville, MD
WUSX	WZST	Portage, WI
WVLY	WOEZ-FM	Milton, PA
WVVR	WZZF-FM	Hopkinsville, KY
WYNF	WVFE	Coral Cove, FL

New FM Call Letters Issued

KAFM	Grand Junction, CO
KAIQ	Littlefield, TX
KNSW	Worthington, MN
KTDX	Mountain Pine, AR
WAIO	Kane, PA
WAIP	St. Joseph, IL
WAIU	Galeton, PA
WAIW	Three Lakes, WI
WASB-FM	Brockport, NY
WDBX	Carbondale, IL
WDWT	Dwight, IL
WFJZ	Alachua, FL
WJCS	Allentown, PA
WKAU	Kaukuana, HI
WMRY	Crozet, VA
WQMR	Jewett, NY

Applied for Permits to Construct New FM Stations

AK	Juneau	100.7 MHz	
AK	Juneau	102.7 MHz	6 kW
AR	Monticello	99.9 MHz	3 kW
CA	Esparto	97.9 MHz	6 kW
CA	Mendocino	89.3 MHz	1 kW
CA	Point Arena	102.3 MHz	1.2 kW
CO	Boulder	96.5 MHz	500 watts (booster)
FL	Florida City	88.5 MHz	21 kW
FL	Indian River Shores	97.1 MHz	6 kW
FL	Naples	88.1 MHz	16 kW
IL	Fairfield	105.9 MHz	6 kW
IL	Quincy	91.1 MHz	160 watts
KS	Kingman	94.3 MHz	50 kW
KS	Ottawa	90.5 MHz	250 watts
ME	Ilesboro	105.5 MHz	25 kW
MN	Hermantown	92.1 MHz	4 kW
MN	Northfield	89.9 MHz	Low power
MN	Roseau	102.1 MHz	50 kW
MP	Chalan Kanoa, Saipan	88.1 MHz	1.8 kW
MS	Mound Bayou	102.1 MHz	500 watts
NC	Norlina	94.3 MHz	6 kW
NH	Nashua	88.3 MHz	300 watts
NY	Alfred	101.9 MHz	1.28 kW
OH	Athens	95.9 MHz	
OH	Dayton	98.1 MHz	Low power
OK	McAlester	91.9 MHz	1.96 MHz
OR	Malin	100.3 MHz	750 watts
PA	Grove City	88.9 MHz	100 watts
TN	Monterey	104.7 MHz	1.3 kW
TX	Midland	95.1 MHz	3 kW
WA	Walla Walla	89.7 MHz	5.9 kW
WI	Balsam Lake	104.9 MHz	25 kW
WV	Petersburg	89.5 MHz	9 kW

Seeking Changed AM Facilities

KJJQ	Volga, SD	910 kHz	Seeks drop of night power to 250 watts.
WRWD	Cornwall, NY	1170 kHz	Seeks drop to 800 watts.

Pending AM Call Letter Changes

Now	Seeks	
KANR	KTIK	Nampa, IA
KZOK	KPOZ	Seattle, WA
WCKN	WMYG	Indianapolis, IN
WHEV	WRTG	Garner, NC
WWZN	WPRD	Winter Park, FL

Changed AM Facilities

KCKC	San Bernardino, CA	1350 kHz	Increased nights to 600 watts.
KENO	Las Vegas, NV	1460 kHz	Dropped to 20 kW.
KIFO	Pearl City, HI	1380 kHz	Dropped to 6.2 kW.
KZTW	Troutdale, OR	860 kHz	Moved to Fairview, 50 kW/450 watts.
WBRD	Pompano Beach, FL	1470 kHz	Increased days to 50 kW.

Seeking Changed FM Facilities

KIOT	Espanola, NM	102.3 MHz	Seeks move to 92.9 MHz, 3 kW.
KLKO	Elko, NV	93.5 MHz	Seeks move to 93.7 MHz, 4.8 kW.

Changed Shortwave Call Letters

Now	Was	
KAIJ	KCBI	Dallas, TX

Applied for Permit to Construct New AM Station

NM	Roswell	1180 kHz	250 watts
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Changed FM Facilities

KKOL	Hampton, AR	107.1 MHz	Moved to 106.5 MHz, 17.5 kW.
KYSL	Frisco, CO	92.1 MHz	Moved to 93.9 MHz, 560 watts.
WVVV	Blacksburg, VA	104.9 MHz	Moved to 105.3 MHz, 25 kW.
WYAJ	Sudbury, MA	88.1 MHz	Moved to 97.7 MHz, low power.
WYKS	Gainesville, FL	105.5 MHz	Moved to 105.3 MHz, 6 kW.

Permits Issued to Construct New FM Stations

AR	Humnoke	101.7 MHz	6 kW
AZ	Nogales	91.1 MHz	3 kW
CA	Walnut Creek	101.7 MHz	1.2 kW (KKIQ booster)
IN	Santa Claus	103.3 MHz	6 kW
NY	Mexico	103.9 MHz	3 kW
PA	Villanova	89.1 MHz	2 watts (WXVU booster)

BF-25K, with the backup rig being an RCA BTF-1001.

KMAG has played country music for the past several years, and last year Arbitron rated it as the number one station in the Fort Smith market. KWHN switched from a gospel format to an all-news-talk format in February of 1993.

Jimmy tells us that he welcomes reception reports to both stations, but especially KWHN/1320. He's interested in seeing just how far the KWHN signal can be heard at night. The main signal lobe at night is on a bearing of 227 degrees relative to Fort Smith. This is generally in a southwesterly

direction from the station. The address of KWHN/KMAG is 423 Garrison Ave., Fort Smith, AR 72901.

The information Jimmy provided was most interesting. Staff members of other stations are invited to pass along similar details. Photos of the station are welcome!

Our Maine Man: One of our regulars, Don Hallenbeck, Registered Monitor KME1CW, of Pittsfield, Maine, sent word that WPCB/99.5, of Pittsfield, was finally going on the air. WPCB was supposed to have gone on the air last winter, but the station experienced several setbacks including the theft of its antenna tower.

Don reports that WPCB finally began test transmissions in June, which he taped. Rather informal stuff, writes Don, with ducks, chickens, and babies heard off mic in the background. The station's General Manager said that he hoped those who heard the test transmissions would understand that "nothing heard on the air right now should be taken too seriously. This is not the final product." WPCB announced that its corporate offices were on Somerset Ave., in Pittsfield, with studios and transmitter on Badgerboro Rd. in the nearby small town of Palmyra.

Don also reports that the sale of Water-

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NEWTALK 1400/AM

KFRU

RADIO YOU CAN DEPEND ON

Logo of Columbia, Missouri's KFRU/1400, which has an all news/talk format. (Courtesy Timothy Kridel, our new Broadcast DX'ing columnist hailing from Columbia, MO.)

ville stations WTVL/1490 and WEBB-FM/98.5 was finally closed after a lawsuit relating to the transaction was settled. The new owner had started furnishing programming to the stations a year ago, while the sale was pending. The first thing he did was install country music formats in place of the existing soft rock programming, much to the consternation of many listeners.

In early June of this year, the deal bogged down in a legal wrangle. The seller said the buyer wasn't abiding by his part of the agreement. For a while the deal seemed dead, but things eventually got talked out and the sale was finalized. The

country music format was proclaimed successful and would be kept going. Pilot Communications, the purchaser, announced that new studios for the stations would be built in Waterville.

Further Information: In July we mentioned comments that came in regarding the fact that WWJZ/640, of Mount Holly, N.J., had gone dark. The station ran a big band and oldies nostalgia music format. There were several possibilities and rumors, but nobody knew for sure why WWJZ fell silent, or when (or if) it might return to the air. John S. Flack, Jr., of Mount Laurel, N.J. provides answers and updates.

The story is simple. WWJZ went off the air on July 10, last year, after a dispute and litigation arose relating to license ownership. The ongoing problems (as this is written) are between John J. Farina, of Mechanicsville, N.Y., and Edgar H. Cramer, of Easthampton, N.Y. On its most basic level, the problem seems to be that Cramer owns the piece of land in Pemberton where WWJZ has been situated. He alleges that in exchange for 49 percent minority ownership in the WWJZ license, he invested nearly \$1-million in the station. However, Cramer claims that Farina put the license into another partnership known as Mount Holly Radio Co.

Farina has countered with the allegation that he turned over a piece of the action only because he had been enticed to Cramer's real estate offices, whereupon he was assaulted and detained from leaving against his will for more than a half hour.

The legal conflict caused a restraining order to be issued in July of 1993 that stopped the station from broadcasting. In March of this year, the N.J. Superior Court lifted the restriction and set the matter on the road to going to trial.

At that point, Farina decided it was time to change the WWJZ transmitter location. During the summer, he made arrangements for WWJZ to share the site and facilities of religious station WIFI/1460, Florence, N.J. The FCC granted special tem-

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porary authority for this operation. WWJZ and WIFI engineers required about two months to work out and complete the technical details for both stations to operate simultaneously from the site. WWJZ operates on a full sked, and should be back in operation by the time you read this.

Stern Silence: Doing what the FCC has never succeeded in accomplishing, someone in Cleveland rudely took Howard Stern off the air over his local outlet, WNCX/98.5. Station officials complained that while Howard was doing a remote broadcast at the Rock and Roll Hall of Fame in Cleveland, his program was deliberately jammed by five minutes by a transmission consisting of obscenities. Later, while making a live appearance, his program was again jammed.

Police arrested a 30-year-old assistant engineer from competing Cleveland station WMMS/100.7, charging him with breaking and entering, disrupting a public

service, and possession of criminal tools. Police allege that he cut satellite feeder cables. Operators of WMMS said they had no prior knowledge of the prank, and that the engineer had been immediately suspended without pay. The engineer was released on 10,000 bond, with his employer stating that he would be fired in the event he was convicted. The FCC was investigating, as several rules were broken.

Howard made the most of the entire incident, pointing out how other stations can't compete with him and therefore have to try to knock him off the air. He was carrying on about how he was under attack. Stern, the consummate master of every situation, was truly in his glory. Unwittingly, the poor soul who tried to silence Mighty Mouth did nothing more than have the opposite effect.

Thanks to Michael Kuentz, of Auburn, Ala., for sending this tasty tidbit. Mike's in graduate school at Auburn University, and teaches mass media classes on the campus.

Note from Missouri: Timothy Kridel, of Columbia, Mo., tells us that local KTGR/1580 returned to the air after an absence of a few years, due primarily to financial problems. The former oldies and big band format is gone now, having been replaced with a simulcast of the KIX-FM/96.7 hot country sounds. KIX-FM is the station that, a year ago, was known as KCMQ when it played pop and soft rock. Tim guesses that KIX and its contemporary country format may well have been inspired by the big success of this format by mid-Missouri stations KCLR-FM/99.3 in Boonville, and KEZS-FM/102.9 in Cape Girardeau. For one month before KCMQ turned KIX, the station played only Garth Brooks! Tim observes it was "a prime example of the tailor-your-playlist-to-the-current-musical-fad madness."

Tim mentions the he's the editor of the "Eastern DX Roundup" in the IRCA "DX Monitor" publication. He's employed at a newspaper in Columbia. Tim's interest in hobby radio extends back to the age of 12, and he's been an enthusiastic POP'COMM subscriber for four years. He writes, "the wealth of information, such as construction permits, call letter changes, and other information provided by you and your readers is helpful and appreciated."

Another Satisfied Reader: John C. Parkhurst, of Eureka Springs, Ark., was one of several readers who wrote sharp letters that took strong exception to my cavalier attitude about WNCN in the May column. WNCN/104.3, New York City's No. 2 classical music station, recently dropped that format because it couldn't attract a large enough audience. WNCN had changed into rock music station WAXQ/104.3. In the May issue, a former WNCN listener had written in complaining he wanted to continue listening to 104.3 FM. I told him that if he stayed tuned to 104.3, he'd have to forget about enjoying Milhaud and take a crash course in appreciating Metallica.

I had no role in the decision to pull the plug on classical music at WNCN. This column only told about the change, and after it took place. It isn't always pleasant to face a reality. Personally, I enjoy classical music. Righteous letters expressing indignant outrage at format changes, the unfairness of it all, the resolve to fight on, and the affront to sensitive musical tastes, would have a sharper sting had they been written to the station, and directed at those who determined the offensive new program format.

Top of the Hour: Come back next month, and please let's hear from you with news clippings, format change info, photos and anything else relating to AM/FM broadcasting.

Beginning with December's issue, my friend Tim Kridel (our "Note from Missouri" sender), will be handling this portion of the column while I continue doing the monthly station updates and changes. See you then and please keep that mail coming in.

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When the FEDEX man carried in an enormous box, the first thought was that someone had sent a Corvette to test. Wrong guess! It was more interesting than that. Cobra Electronics had sent the column a Cobra 2000GTL AM/SSB base station to give us a first hand look. This piece of communications gear has become legendary to 27 MHz operators.

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The Cobra 2000GTL's transmitter section comes equipped with a 7.7 MHz crystal lattice type SSB filter. The receiver section has AM sensitivity of 0.5 μ V for 10 dB (S+N)/at greater than 1/2-watt of audio output, and SSB sensitivity is 0.25 μ V under the same conditions. A logarithmic speech processor delivers the best possible "talk power" on SSB without flat-topping or splatter.

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The Cobra 2000GTL weighs in at a formidable 20 lbs., and contains 18 IC's, 6 FET's, 76 transistors, 93 diodes, 12 LED's, plus 1 SCR. Whether measured by its components, size, weight, looks, reputation, or performance, this is a lot of radio.

When you key up with the Cobra 2000GTL, you do get noticed. This radio is a class act, and usually attracts questions and attention when other operators hear it in action. A pleasure to operate, and easy on the eyes, the Cobra 2000GTL has definitely earned its niche among CB's most respected and impressive base stations.

The Cobra 2000GTL comes from Cobra Electronics Corp., 6500 W. Cortland



The Cobra 2000GTL AM/SSB base station retains its place as one of CB radio's legendary radios.

St., Chicago, IL 60635. For more information, or dealer locations, phone 1-800-COBRA-22. Please let Cobra know you read about the Cobra 2000GTL in *Popular Communications*. You can also obtain more information if you circle 105 on our Readers' Service.

Readers' Forum

Frank Carson, SSB Network member SSB-88S, and ham N3OCW, was given an old CB radio that still works. A copy of the original owner's license taped to this Courier 23-Plus is dated 1970. It's missing its mic, and there's no manual or schematic. Frank hopes for some background information on the Courier 23-Plus. He would like to know if any reader can provide a copy of the manual or schematic, and/or advise regarding how to wire a mic for use with the unit. His address is Frank Carson, SSB-88S, 14911 Whitehall Ave., Accokeek MD 20607.

The Courier 23-Plus was introduced in 1968 by Courier Communications, Inc., a subsidiary of Whittaker Corp., of Newark, N.J. Before being purchased by Whittaker and changing their name to Courier, this company was one of the earliest CB manufacturers, known as E.C.I. Communications, of White Plains, N.Y. The present-day owner of the Courier heritage is Fannon Courier, of Tustin, Calif.

Courier 23-Plus was sold for \$199 (including crystals for all 23 channels). This unit was the improved version of the company's very popular earlier model, Courier 23 (\$189), which continued to be manufactured even after the Courier 23-Plus came out. The Courier 23-Plus featured a newly added cascode front end and nuvistor mixer for improved receiver operation. It had a transistorized AC/DC power supply, S/RF meter, modulation indicator, AVC control, a floating gate squelch control, ANL, and a modulation circuit featuring a built-in preamp. The set was supplied with a noise cancelling mic.

A collector of historic CB radios who hopes to open a museum someday, provided us with something quite special. Our collector is Brian, of Texas, and he sent along a photo of Midland's 6-watt 3-channel SSB CB handheld radio. This handheld

showed up around 1970 or 1971, and Brian believes it to represent the only SSB handheld ever produced for the CB market. The one he has is in fine shape. The clarifier control is the knob seen at the upper right in the photo.

Indeed, this was a rare find. It actually does appear to have been the only attempt at producing a CB SSB handheld. It was not marketed aggressively by Midland, and wasn't advertised. In 1970/1971, the CB SSB market was small. In a twinkling, this novel radio appeared then faded into oblivion. Hardly anyone noticed its arrival or departure. Few sets were made or sold.

Brian advises that he is planning a newsletter for people who collect, trade, buy, sell, repair, or are interested in vintage CB radios, old CB publications, and related items. If any reader wishes further details, or has material to sell, please contact Brian Woodbury, P.O. Box 137, Sealy, TX 77474. Enclosing an SASE for his reply would be greatly appreciated.

The PL-259 and Friends

Coaxial cable connectors look like devices for dentistry, yet they play an important role in determining the performance (good or bad) of your CB rig. Cable connectors are intended to maintain a more or less uniform impedance across the connections they make. That way, connections don't increase the SWR of the transmission line. Also, these connectors are designed to ensure secure mechanical connections in addition to good electrical linkages. This, too,



In 1968, this Courier 23-Plus was introduced as the deluxe version of the popular Courier 23.



Why not make an SSB handheld for CB? Midland made this one almost 25 years ago. Not that many people knew about it.

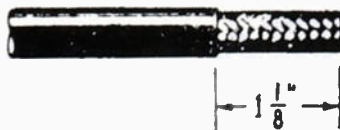
helps establish the maximum reliability of a transmission line.

The types of connectors commonly used on all modern CB base and mobile radios were developed many years before the first CB sets went on the air. In fact, the first CB radios utilized a wide assortment of connectors. The types of standard so-called "UHF" connectors used on present-day CB radios will work up to 300 MHz. On 27 MHz, they offer better-than-needed performance. Inasmuch as scanners cover the 450 MHz band, BNC type connectors are used as they work at higher frequencies without signal loss.

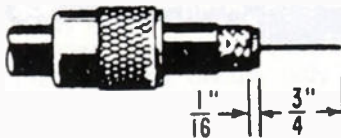
Over the years, a whole family of UHF connectors has been created, including several adapters. Not all have any application to CB radio, having been devised for specialized military or industrial uses. All UHF connectors and adapters are identified by type numbers based upon military designations. Let's discuss types of potential use to the CB'er.

The PL-259 Male Plug: This is the standard male connector found at the end of the coaxial cable. It is designed to mate with the female connector on the back of a CB

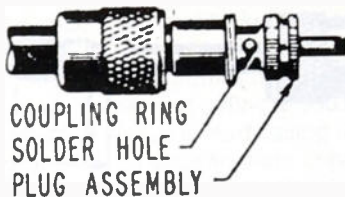
ASSEMBLY OF CABLES TO COAX PLUG



Cut end of cable even.
Remove vinyl jacket $1\frac{1}{8}$ in.—don't nick braid.



Bare $\frac{3}{4}$ in. of center conductor—don't nick conductor.
Trim braided shield $1\frac{1}{16}$ in. and trim. Slide coupling ring on cable.



Screw the plug assembly on cable.
Solder assembly to braid through solder holes.
Solder conductor to contact sleeve.



Screw coupling ring on assembly.

Here's how to attach a PL-259 to thick RG-8/U-size cables.

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power unit to provide electricity to power your home 24 hours a day—every day. Our video will clearly show every component involved in this electrical power system, and the enclosed literature will provide sources from which to buy the 5 key compo-

nents of the system. Miscellaneous parts can be bought at hardware, electrical supply, and auto part stores.

If after viewing the video you still don't feel competent to assemble the components, then simply hire a qualified electrician. This is not a new invention but an innovative design using technology that can be bought off the shelf, that

was not available five years ago, which now makes it feasible and extremely reliable. **NOT SOME VAGUE THEORY.** This is something we have lived with for over two years, 24 hours a day without a single power failure (which is something none of our neighbors who are hooked up to the power lines of the Electric power Company can say).

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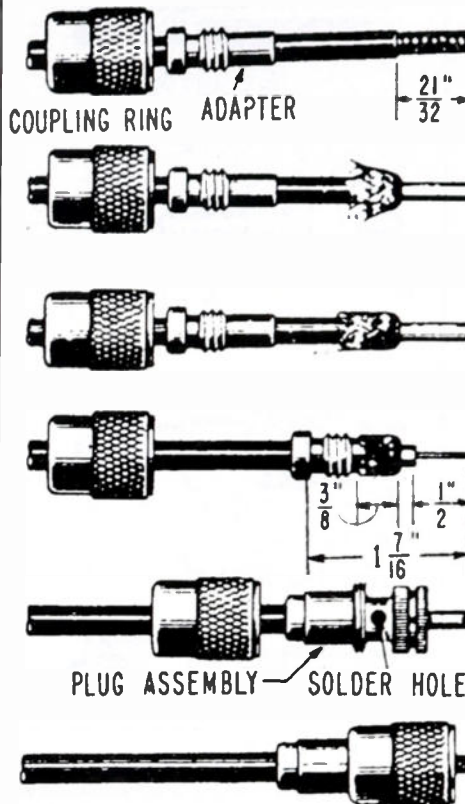
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CIRCLE 80 ON READER SERVICE CARD

ASSEMBLY OF CABLES TO COAX PLUG USING SPECIAL ADAPTERS



Cut end of cable even. Remove vinyl jacket 21/32 in.—don't nick braid. Slide coupling ring and adapter on cable.

Fan braid slightly and fold back over cable.

Compress braid around cable. Position adapter to dimension shown.

Press braid down over body of adapter and trim.

Bare 1/2 in. of center conductor—don't nick conductor.

Pre-tin exposed center conductor.

Screw the plug assembly on adapter.

Solder braid to shell through solder holes.

Solder conductor to contact sleeve.

Screw coupling ring on back shell.

This is the way to hook up a PL-259 to thin RG-58/U cable, using a special reducing adapter.

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CIRCLE 86 ON READER SERVICE CARD

radio, on CB antennas, on TVI filters, on SWR meters, on antenna switches, and some test equipment (Radio Shack 278-188, or equivalent). As supplied, it will accept large diameter (RG-8/U size) coaxial cable. To use with thinner (RG-58/U size) cable, a type UG-175 (Radio Shack 278-206, or equivalent) reducer or adapter must be screwed unto the back of the plug.

It's important that you follow the proper technique for attaching a PL-259 plug to the end of a coaxial cable. You need a single-edge razor blade or a box cutter (to cut the cable's outer plastic insulation), a pair of wire strippers (to bare the center conductor), a pair of wire cutters (to trim the center conductor to the proper length), and a soldering gun. Go easy on the heat.

We have provided detailed diagrams for attaching PL-259's to large and thin diameter coaxial cables.

The SO-239 Female Panel-Mount Receptacle: This is the connector on the back of all modern CB base and mobile radios, unless the radio has its antenna lead wired in permanently. Radio Shack 278-201, or equivalent.

The M-359 Inline Right-Angle Adapter: This small adapter is shaped like the letter "L," with a male PL-259 plug at one

end and a female SO-239 socket at the other (Radio Shack 278-199, or equivalent). Used for solving the problem of making secure connections in tight spaces with little clearance (such as behind an underdash transceiver). Installed on the rear of the radio, it allows the antenna cable to approach and connect at a right-angle from the side, top, or bottom of the rig.

The PL-258 Double-Female Coupler: This simple device (Radio Shack 278-1369, or equivalent) joins PL-259 connectors at both ends. Consequently, it offers a convenient means for joining two short lengths of coaxial cable together to form a single longer one. Just attach PL-259 plugs to the free ends of the cables, then connect them together through a PL-258 coupler.

These are the main types of UHF connectors that will be of use to the CB operator, although other types are available for special purposes which can be put to use at times, too.

Now it's time to stand by on the side. We'll be listening and watching for you. Drop us a card or letter, send along a station photo, your QSL, or a copy of a good one you received. Ask us questions, or make comments for the CB world to know about. We're down and gone for now. ■

Making More CW Contacts

Experience makes a big difference in operating CW. You can have fun, learn a lot and improve your skill by just getting on CW and making contacts. And it's more fun as you reach higher skill levels. Al Brogdon, K3KMO, now Managing Editor of QST Magazine, won the ARRL's 1993 Cover Plaque Award for his article, "10,500 Miles of Mobile CW—On a Motorcycle." Al operates Morse code from his van, too. As a dyed-in-the-wool CW fan, here are some of his tips:

One difference between a novice CW operator and an old-timer (OT) is success from the calls they make. A beginner may make a dozen calls for every reply, while an OT with the same station and antenna could get 11 replies out of 12.

Everybody calls CQ at some time, but there are *disadvantages* to calling CQ. You might get a reply from another ham who's so weak that it strains your brain to copy him. You might not even get a reply at all. Your probability of a CQ resulting in a QSO is only fair—especially if your power is low and/or your antenna is marginal.

If you look for another amateur calling CQ and then reply to his call, however the chance of success is better. You might tune around and pass up one or more CQs (because of weak signals, interference, etc.) before finding a big signal with a good keying (a good "fist") that says to you, "You'd enjoy talking with me, call me!"

Now all you have to do is to call him. But wait, other operators also might call him when he stands by. If you're trying to bag a DX station or working a contest, you can count on serious competition! You've found a potential contact; now your task is to be the station the CQer hears and chooses, above other callers, to answer.

Where to Tune

Most CW operation is done with both stations transmitting on the same frequency. A station calling CQ will almost always listen first on his own frequency, and then perhaps tune around +2 kHz or so to see if anyone is calling slightly off frequency. Therefore, the first thing to do is set your transmitter to his frequency (certainly no further than 200 Hz away). The term used to describe getting on the same frequency as the other station is *zero beating*—you zero beat the other station; you tune to zero beat with him.

There are times when a station—usually a DX station working on a pileup of many other stations—will intentionally listen in

on another frequency. The station will direct calling stations to transmit on another nearby frequency to keep his own frequency clear. But let's leave this issue for another day and discuss only simple, straightforward operating at the moment.

When to Call

Once you know where to hunt for contacts, next you need to know *when*. This is pretty simple. Be ready, and as soon as the other station finishes his CQ and signs **K**, immediately start calling. If you hesitate, another station may start calling first. The CQ'ing station usually starts copying the first station he hears and, as the old expression *almost* says, "He who hesitates is last."

Here's a slick, simple operating technique you can use. Many stations operate QSK (also called *break-in*), where the transmitting operator is listening on his frequency between his own dits and dahs. When you find a station calling CQ, zero beat him (so you're transmitting where he's listening) and send something—maybe a string of dits or dahs, or **BT**. Just something he'll hear. If he's operating QSK, he'll usually hear my *break* and stop sending to see what's going on. Then I give him a short call (his call sign once, then **DE**, then my call sign once, the **AR**) and I've snagged him! There may be a few other operators who had been listening to his CQ, waiting to call him *after* he had signed, but they'll have to wait.

How to Do it

Now you have the *where* and *when* nailed down. The *how* is more complex. Let's take it in simple-to-understand parts:

- Have the best signal possible. Everything else being equal, it's typical that a CQ'ing operator will reply to the strongest signal he hears calling him. Don't try to accomplish this by pushing your rig to or past its power limits—the difference those last few watts make can't be heard and you could damage your transmitter! Instead, produce the best transmitted signal by having the best antenna you can manage. An antenna that pounds out a monster signal will make up for your station's other deficits.

- You can attract the attention of the other station more easily if you sound like a good operator. Your sending needs to be crisp, well-formed, and about 99% accurate. Practice your sending *off the air* until you sound like the code practice from W1AW (the W1AW code practice sched-

ule is published in every issue of the ARRL's QST magazine). Have your friends who are good CW ops listen to your sending and critique it to guide you toward excellence. This point often makes all the difference in the world.

- Send at the same speed the CQ'ing operator is using. He's sending at the speed he finds comfortable, and you want your sending to be comfortable to his ears.

- Learn how long your call should be—whether a 3x2 (his call sign three times **DE** your call sign two times **AR**), a 2x2, a 1x1, or whatever works. Only experience shows how long to call under given circumstances. A rule of thumb is if the operator sounds competent (good fist and good procedures) and if his signal is fairly strong (which means you'll probably be fairly strong to him), you can give him a 1x1 or 1x2 call and he'll come back to you. If you finish your call before your competitor does, the CQer may reply to you, rather than waiting for the other station to sign. If your fist is excellent, he'll likely come back to you because he knows you'll be easy to copy.

Practice!

These are simplistic suggestions to approach a situation that's more sophisticated than it first appears to be. Your success will be directly related to how well you learn from your on-the-air experiences. Sometimes you'll just plain goof (we all do). But even that's a learning experience—you mumble to yourself in embarrassment, "I'll never do *that* again!" However, carefully observe the results of what you're doing when making calls, and you will see the patterns that bring the best results.

Learn to copy CW in your head (without having to write it down). Being able to copy 15 wpm is adequate for casual operating, but continue to practice—by listening to W1AW code practice, or even better, by making contacts on the air—until you can head-copy at about 25 wpm. Learn to anticipate what the other operator is thinking and try to understand what he's hearing at his end of the radio path; don't just copy what he's sending. Put yourself in his place. That kind of thinking will help you become the kind of operator who not only makes successful calls, but also has successful *contacts*.

Send your photos, cards, comments, and so on, to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111; Internet bbattles@arrl.org. And keep tapping that code key! ■

Diversity Reception Antennas

One of the joys of shortwave listening is learning what "fading" means. Skip communications, which is what gives shortwaves the ability to propagate over very long distances, are carried via the earth's ionosphere. Signals leave the transmitting antenna, and travel into the ionosphere where they are refracted enough to be bent back towards the earth's surface. To the ground bound observer, the effect seems as if there is a "radio mirror" at a height of 100 to 300 miles above the surface.

The ionosphere gets its ability to affect radio communications because the atmospheric gases, largely oxygen and nitrogen, become ionized by energy from the Sun. Ionization occurs when a gas molecule loses one or more electrons; the electrons become "negative ions" and the remaining atom becomes the "positive ion." Because of a tremendous variability in the process, the ionosphere is a very unstable region, and that variability is seen as variation in reception of shortwave signals. One of the most common forms of variation is called fade, i.e., signal strength variations.

One way to overcome fade is to use diversity reception techniques. There are several forms of diversity reception, but two of them depend on the antenna system at the receiver site: spacial diversity and polarization diversity.

Spacial Diversity

Spacial diversity works because the mechanism of much shortwave skip fading is that the arriving signal physically moves. As the ionosphere shifts about, the point at which the signal maxima arrives on the surface shifts also. You can see this effect by "ray tracing" a skip signal on paper by assuming the same signal is reflected from differing heights as the ionosphere shifts. As it happens, the fading is often quite specific in that it will fade out at one location, only to become stronger at a location that is only a half wavelength away.

Figure 1 shows how a spacial diversity system works. Two or more antennas (three are shown) are spaced along a line at half wavelength intervals. As the signal fades at one of the three antennas, it is likely that it will pick up at one of the other two.

In some simple, but not terribly effective diversity schemes, the three signals are combined at RF in a hybrid combiner network, a three winding transformer or a resistance "star" combiner. Professional diversity schemes use three identical radio receivers, all tuned to the same frequency; one receiver is used for each antenna in the diversity array. The receivers are typi-

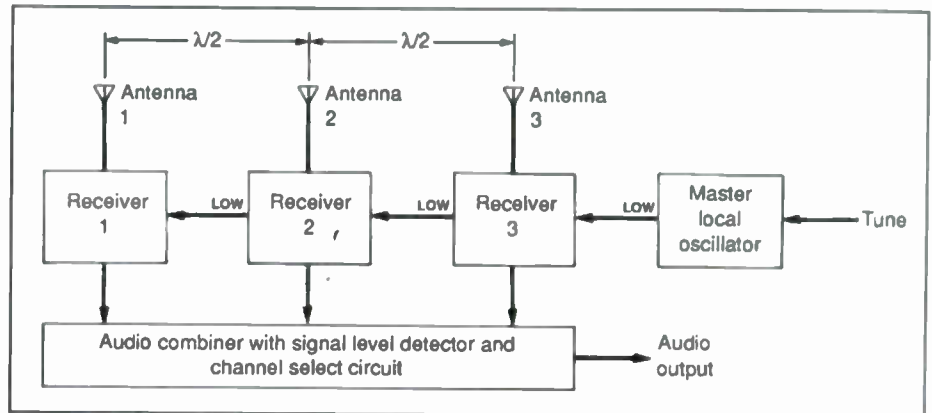


Figure 1. Spacial diversity system.

cally superhets, so the operating frequency is set by the local oscillator (LO) within the receiver. Professional diversity units often use a separate master oscillator as the LO for all three receivers, or use the LO in one receiver for all three. This tactic ensures that all three receivers are on the same frequency without requiring a lot of individual tuning.

The audio outputs of the three receivers are combined in a circuit that will examine the strength of the signal in each of the three channels, and then select the channel that is strongest at any given time. This scheme is also used by ham radio two-meter "repeaters" that have multiple receive sites that communicate audio to the master site via telephone lines.

Polarity Diversity

One of the things that causes shortwave skip signals to fade is polarization changes. Radio signal polarity is determined by the direction of the electric field ("horizontal," "vertical," or in combination "circular"). This type of fading is also seen at VHF and UHF frequencies. Polarization of the antenna is determined by the direction of the

radiator element; i.e., a horizontal dipole is horizontally polarized, while any vertical antenna is vertically polarized. A loss is seen in cross-polarized receiver systems, e.g., when a vertically polarized signal is received on a horizontally polarized antenna (or vice versa).

In the polarity diversity system (Figure 2) there are two antennas in use at the same site; one is horizontally polarized, while the other is vertically polarized. As a signal fades due to polarization changes, the relative signal strength seen at the antenna will also change.

As in the spacial diversity system, each antenna has its own receiver. The audio outputs of the two receivers are joined in a combiner that selects the strongest audio for delivery to the outside world.

Diversity reception goes a long way towards fixing the fading problem. However, it's not a fix-all because there are other forms of fading seen in the shortwaves. One type, selective fading, occurs on AM signals because the two sidebands upper (USB) and lower (LSB) fade differentially. Owners of good single sideband receivers (with a decent SSB filter) can often over-

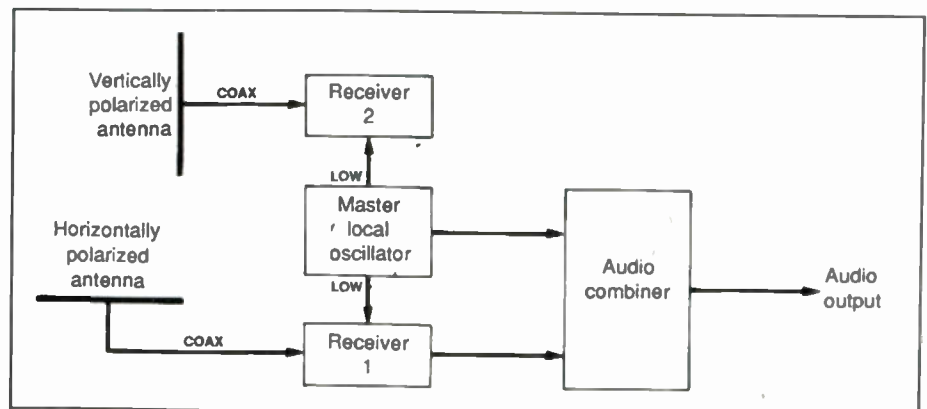


Figure 2. Polarity diversity system.

come this problem by using the exalted carrier method. In that technique, the receiver beat frequency oscillator used in the SSB detector is zero-beat with the AM signal's carrier, and the 2 to 3 kHz SSB filter used to select either the USB or LSB, but not both. In some modern receivers, exalted carrier reception of AM signals is facilitated by a nifty little circuit called a synchronous detector. See Harry Helms' *Shortwave Listening Guidebook* for more information on this subject.

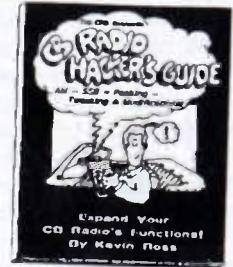
"Antlers" Software

The Antlers software is designed to run on MS-DOS or Windows (i.e., "IBM-compatible") computers. It will calculate the lengths of the elements for a wide variety of wire antennas, verticals, beams (yagis and quads), and small loops (the kind used for radio direction finding or for less noisy reception on the low bands). The Antlers diskette also contains programs for calculating impedance matching networks, a statistics and data logging program (especially good for science students) and a simple scientific experimenting game. Antlers is not copy protected, and the copyright notice on the diskette allows for unlimited non-commercial copying. If several of your friends also want the software, then buy only one diskette and make free (repeat free) copies for them. The diskette is \$20 postpaid. Contact me at P.O. Box 1099, Falls Church, VA, 22041 if you would like a copy. ■

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COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

We received an extremely informative letter from Capt. Jeffrey L. Yates, Marine Services, Inc., in Kentucky.

"In the June issue, a reader reported some radio communications between a shore station and several river towboats. The names were mis-spelled, although they sounded similar to what was heard on the radio. I have a solution to this problem which may bring more information and entertainment to the listener.

"I was introduced to my river-related career and avocation in the mid-1950s as a youngster. I stumbled across some radio conversations between river towboats passing my home on the banks of the Ohio River while experimenting with my newly assembled (Archer) crystal radio kit. It didn't take me long to graduate to a 'real' short-wave receiver which I kept tuned almost exclusively to marine radio broadcasts, all of which took place on DSB AM frequencies prior to the switch to the current VHF FM marine band.

"When I first started monitoring the towboats more than 35 years ago, I had a problem getting some of the names spelled correctly in my log books until I was introduced to an interesting and helpful publication, the *Inland River Record*.

"This book is published annually by the *Waterways Journal*, a weekly magazine dedicated to serving the commercial inland marine industry for more than 107 years. The *Inland River Record* is updated yearly with complete information describing all the towboats and tugs operating along the entire Mississippi River and its tributaries, including the Gulf Intracoastal Waterway.

"It lists all the vessels with dimensions, horsepower, and owners, along with a complete history where they were built, and previous names and owners. It is most help-

In the January 1994 issue of popular communications I noticed a logging report on the USAF MARS station, CUW20, Lajes Field, Azores, Portugal. Below is a description of and some background information about our station:

Equipment: 3 Harris Corp. RT-1446, 100 W HP Transceiver
2 Harris Corp. AM-7224, 1 Kw Linear Power Amplifiers
2 Harris Corp. AM-7223, 500 W Linear Power Amplifiers
1 B & W 2.5-30 Folded Dipole Antenna
1 Cobra Head Dipole Antenna

Modes: SSB Packet to the United States
SSB Voice to Europe

Power: 700 W Effective output power on Packet
400 W Average output power on Voice

Operating Frequency: 14375 for Packet

Hours of operation: 1600 UTC to 0100 UTC daily

We operate from Terceira Island which is part of the middle group of islands of the Azorean Archipelago, located approximately 2,200 miles east of Washington D.C.

The Lajes MARS station is one of the few USAF stations with a foreign call sign. During Desert Shield/Storm we helped relay MARSgrams to the US and still provide the same service to all deploying personnel who pass through here. The Packet portion of our station was added last year and has increased the efficiency of our operation. Due to the somewhat isolated nature of this island, our MARS station is an important part of maintaining communications with our loved ones in the United States and Europe.

I hope this letter has provided some interesting information about the USAF MARS station here at Lajes and hope to see more loggings in future columns.

I enjoy reading Popular Communications Magazine and share all the logging reports concerning Lajes with the section chiefs here.



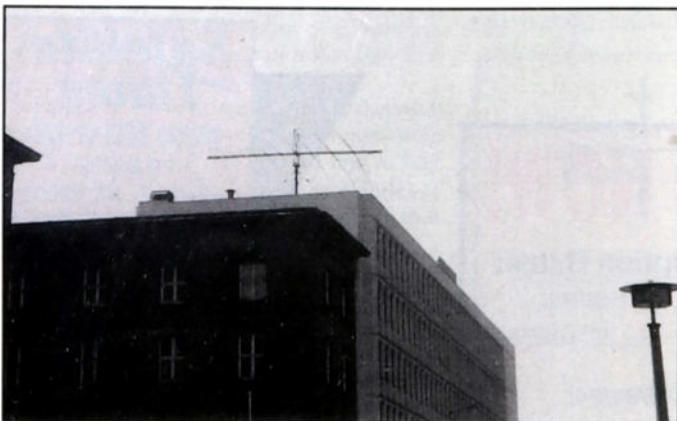
Alan D. Gregersen, TSGT, USAF

This interesting letter referred to a packet logging of a transmission from the USAF MARS station, CUW20.

ful in getting the correct spelling of names which are sometimes difficult to understand because many of the captains tend to slur the names or pronounce them with a deep Southern or Cajun accent.

"A typical example of the name-spelling and recognition problem appeared in the June column. Mr. Baker, from Ohio, list-

ed several towboats that he heard talking to WFL, Southern Towing Company, Memphis, Tennessee, on 6230 kHz. Although spelled phonetically correct, these towboats should have been identified as "FRANK TAMBLE," not "FRANK TEMPLE;" "LAURA TAMBLE," not "LAURA TEMPLE;" "ROBERT INGLE," not "ROB-



During his travels, Kevin Tubbs, VT, took these two photos. The first shot shows the antenna on the roof of the Syrian Embassy, in Berlin. The second is a tower with many dish antennas located in Mombasa, Kenya

ERT EAGLE;" "LAURA ELIZABETH," not "LAUREL ELIZ;" and "SCOTT STEGABAUER," not "SCOTT SWEETBRIER." These boats were named in honor of family members originally owning Warner and Tumble Towing Company—later acquired by Southern Towing Company.

"By checking the alphabetically listed towboats for similar names to those heard on the radio, a serious communications hobbyist can greatly improve his reporting accuracy and also add interesting background material to his listings.

"The *Inland River Record* celebrated its 50th anniversary with the current edition. This golden anniversary edition is available for \$32 postpaid from the Waterways Journal, Inc., 319 North Fourth Street, Suite 650, St. Louis, MO 63102.

"I think readers will find the *Inland River Record* a valuable tool to aid in monitoring utility stations in the marine band."

Thanks so much, Capt. Yates. By the way, QSL opportunities are enhanced through the use of the section listing owners' addresses. I suggest PFC's be utilized as I doubt that the towboat and tug companies would have QSL cards.

I also found a sample issue of the *Waterways Journal* magazine to be of interest. There were articles on a variety of subjects including Army Corps. of Engineering activities, historical information, and a summary of the 50 years of service of the USCG Buoy Tender SUMAC. The magazine costs \$28 per year.

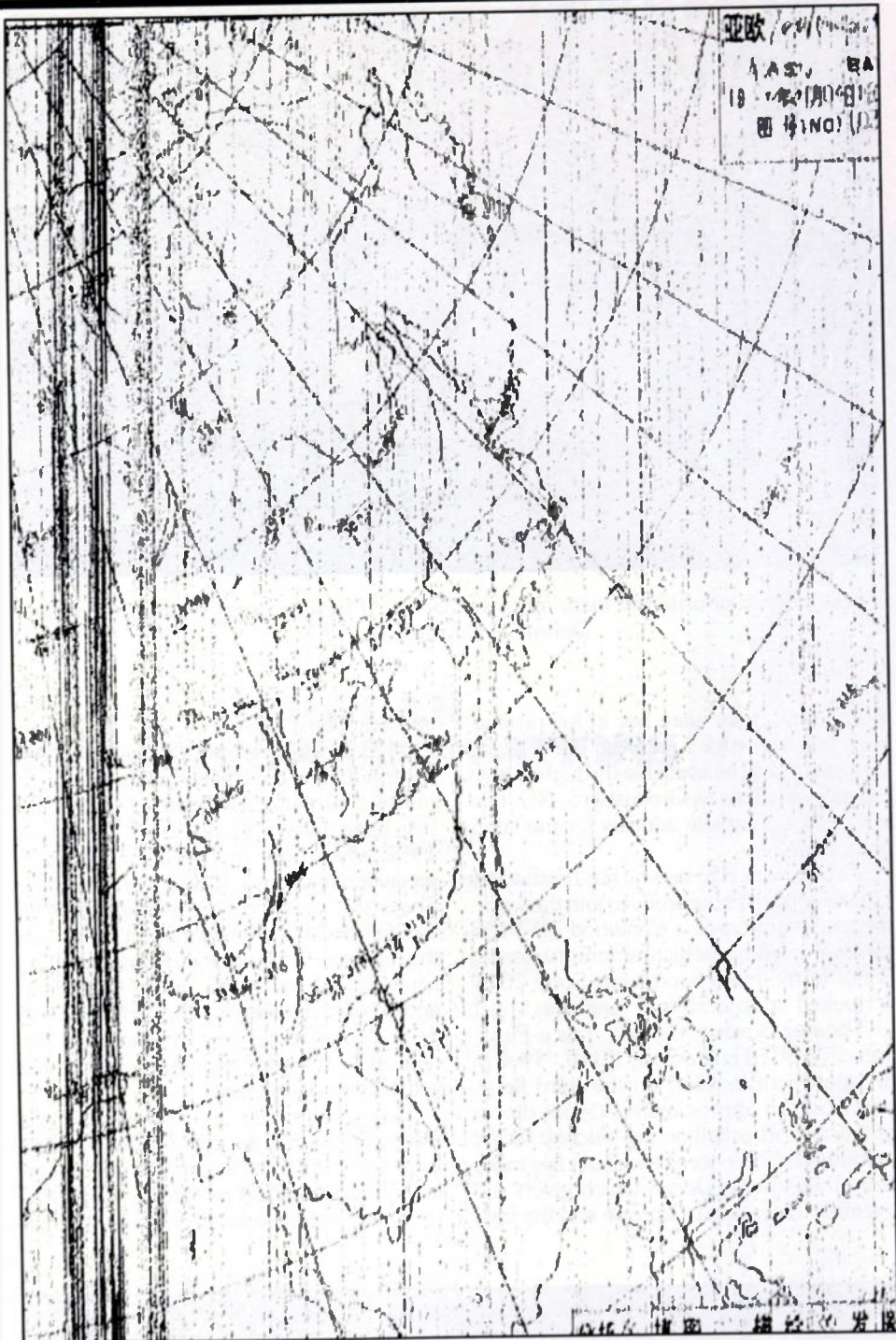
U.S. Coast Guard data for 1993 showed the following activities for a typical day: 144 SAR missions conducted; saved \$1.5-million in property; 15 lives saved and assistance given to 330 persons; 64 commercial vessels inspected; 150 aids to navigation serviced; interdicted 112 illegal aliens; boarded 90 large vessels to conduct port safety checks; investigated 17 marine accidents; responded to 34 oil and hazardous chemical spills; seized 318 pounds of marijuana and 253 pounds of cocaine with a street value of \$7.7-million.

With such a variety of activities, it is easy to see why listening to USCG communications offers so much appeal to SWL'ers.

Several readers have asked if I know of a Time Station listeners club. Try the International Time DX'ers Association, 1119 Parkwood Avenue, Rockford, IL 61107. Further details can be obtained from ITDXA.

From Richard Baker, OH, came the following news: "The German Navy ships I logged last month paid off with my first German Navy ship QSL. It turned out to be quite a catch. The FGS Gorch Fock (A-60) is a three-masted training barque; a sister of the USCGC Eagle. The ship's radio officer sent a booklet along that is a lot like the U.S. Navy 'Welcome Aboard' books.

"I'm awaiting replies from an Australian Navy ship and a Dutch warship. If these guys pull through I'll have over 220 war-



The FAX chart was logged by Richard Baker, OH. It was transmitted by BAF4, Beijing Meteo on 10117 kHz at 0036, 120/576. The lines on the left were caused by CW QRM.

ships and stations from seven countries represented in my display.

"The June issue had a 16687.5 kHz RTTY logging of the M/N Presidenti Frei. The M/N stands for "Moto Nave" (Motor Ship); it is normally sent by Italian ships.

In the May issue I noticed several loggings without callsigns. I have the callsigns: M/V Pal Eagle is P3DQ4; and the Maratha Mission is VTFF.

"Finally, all the Exxon-XXX ships became SeaRiver-XXX back in late 1993, according to Pacific Maritime magazine. SeaRiver Maritime Inc., is formerly Exxon

Shipping. Exxon Boston became the SeaRiver Boston and has since become Coastal Corpus Christi."

Thanks for all the info, Rich!

Greg Gilbert, GA, had a question about the Era synoptic decoder used to decode 5F weather traffic. Robert Hall, South Africa, had mentioned its use in one of its RTTY loggings.

The unit is made in England by Enterprise Radio Applications, Ltd. Their address is Unit 5 Clarendon Court, Winwick Quay, Warrington, WA2 8QP.

I wrote them for information in 1993.



These photos of antenna installations at Scott AFB, IL, were provided by reader Dennis J. Capriglione, MO.

At the time, they were not in full production, but the letter I received did indicate the units would be available through Action Communications in Greensboro, NC. I do not have a complete address for the latter company.

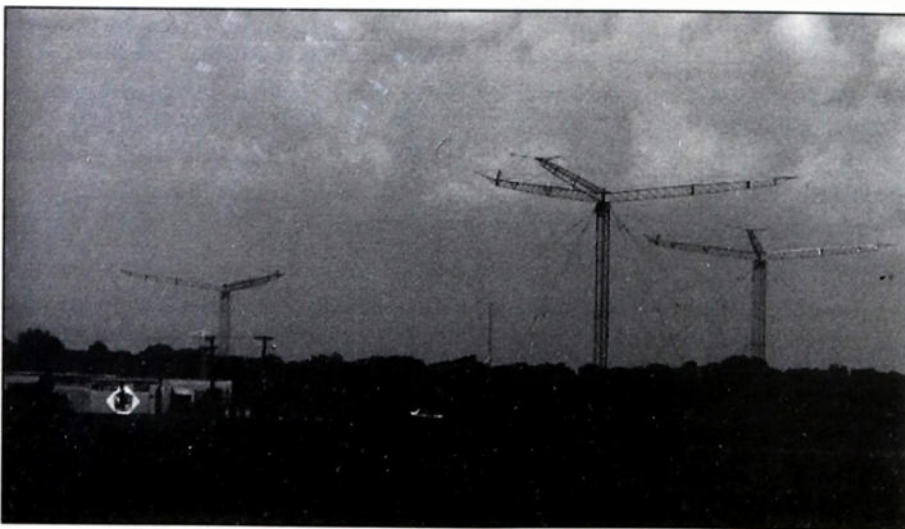
Tom Severt, KS, says he has finished his schooling and is now ready to join the workforce. He now uses a Kenwood TS-140S transceiver with a vertical antenna when he is not in the Ham bands. His Sony 2010 is hooked up to a 75-foot longwire.

Thomas Borden, Canada, has a Panasonic RF-3010 and a Sony 2010. "I live in an apartment building on the third floor, and I use an approximate 70-foot dipole antenna (horizontal) on my balcony facing a Southwest direction. I am about five miles from the Atlantic Ocean which gives me excellent reception to Europe and the East

and Southeast USA."

Matt Kiner, PA, wrote "This is my first contribution to the Utility column, although I have contributed to *Pirates Den* before. I've been into SWLing since Christmas 1992 when I got my Panasonic RF-B45 receiver. I have since then got one of Radio Shack's active shortwave antennas which I use along with the longwire that came with the receiver. Unfortunately I must string the wire around my room since I live in an apartment. However, the combination does a good job of pulling weak SSB signals out of the goo. My main UTE interest is maritime operations."

Randy Humphey, TX, indicated he was able to catch some good FAX transmissions from CFH in Nova Scotia. His equipment is a 286 clone, VGA monitor, PC HFFAX program and a 50-foot longwire antenna



This is a view of Antenna Products LPH-89's.

running North to South.

Some readers may have noted TIS broadcasts popping up on frequencies other than the normal 530 and 1610 kHz channels. In April 1992, the FCC allowed TIS operations on the same frequencies as those used by commercial AM broadcast stations providing that the TIS transmissions would not cause interference to those commercial broadcast stations on the same and nearby frequencies. Thus for example we see TIS broadcasts on 690 kHz (Hoover National Historical Site); Visitors Center in League City, TX on 1290 kHz; Presque Isle State Park, PA on 1480 kHz; Virginia Beach, VA on 610 kHz; Burkburnett, TX on 1250 kHz; and Bensenville, IL on 1620 kHz. This latter station is for information concerning a disaster or weather emergency. Bensenville is located just past the end of the main SW runway at O'Hare International Airport near Chicago.

The foregoing details were extracted from publications of the National Travelers Information Radio Exchange (NTIRE).

Before going on to the loggings, I want to pass along an item from Mark Heywood, Alberta, Canada who advised that the mention of "Air Mike" in a 21985 kHz logging in the July issue referred to Continental Micronesia which is believed to be a subsidiary of Continental Airlines. "Air Mike" is apparently based in Guam.

UTE Intercepts. All Times UTC.

159: U/i signal. What is this transmission? (JW) Probably was the Ground Wave Emergency Network station located at Mequon, WI, on an actual freq on 160.625. (Ed.)

159.3: GWEN station, Beantown, MS at 1840 (Ed.)

163.1: 1GWEN station, Crownsville, MD at 1836 (Ed.)

170.6: GWEN station, Lappans, MD at 1838 (Ed.)

242: Very weak signal, sounds like FAX Hrd at 1843. (Ed.)

245: Beacon LUA, Lurray, VA at 1844. (Ed.)

317: Beacon CBE, Cumberland, MD at 1846. (Ed.)

404: Beacon IUB, Baltimore, MS (Institute) at 1849. (Ed.)

414: Beacon PYD, w/i, strong signal in Calif. (BB)

518: VFN, Canadian CG, Montreal at 0750 w/ "experimental" NAVTEX info in FF using NAVTEX code, TA, also has EE Bcst. (RB)

530: Unlocated Maryland TIS bcst. Weak & bad QRN. Another weaker TIS under first signal. Hrd at 1840. (Ed.)

710: TIS KAS1950, NY State Thruway Authority at 0100 w/rptng test mssg which says station will bcst lane reductions, construction schedules, accidents, and wx in near future. (DK)

2182: H9CK, M/V Freewinds at 0547 wkg Bermuda Harbor Radio "RCC Bermuda" in USB re distressed M/V Elaine, 86-foot cargo boat taking on water. QSY 4125 kHz. (RB)

4015: NMH, USCG Systems Command, Alexandria, VA at 1906 in CW wkg amateur rdo KC8UR, foll by clg CQ & QSX 3705 kHz on Armed Forces Day. (RB)

4035: AAR, Fort Bragg, NC at 0139 wkg amateur WA8DRL, WA4JQS, & W1NU in LSB on Armed Forces Day. (RB)

4113: HPEN, Cruise ship SS Britanis at 0321 clg/wkg WOM, Pennsuco, FL for R/T t/c. (RB)

4125: H9CK, M/V Freewinds at 0612 wkg NMR1, USCG San Juan re distressed M/V Elaine, a 86-foot cargo boat taking on water. Bermuda Harbor Radio had requested NMR1 to come up on this freq.

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Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

Freewinds later passed hand pumps & material to fix leak & Elaine set sail for Puerto Rico. KYR822, u/i wkg WPC8214, ves Rebel at 0711 w/posit report. Both in USB. (RB)

4360: YL w/Mike India Whiskey 2 at 2015. In background CW stn sending CQ DE GNI, Nlton, Isle of Wight, UK. MIW2 is Mossad station. (SM)

4369: WLC, Rogers City, MI w/current wx conditions for Great Lakes. Hrd 0148. (JS)

4377: At 1200 strange six-note rptng tune in AM mode. Off at 1205. (SM)

4420: WOO, Ocean Gate, NJ wkg various ships for tfc at 0023 in SSB. (MK)

4463: YL rptng Foxtrot Tango Juliet 4 at 2000. Mossad. (SM)

4707: UL Air Defense Ground Environment radar stations Neatishead & Portreath wkg various u/i call-signs w/tracking reports & position reports re Alligator Playground activities. Suspected status code mssgs sent such as Beaver 11bn, Beaver 11, Beaver 12. Hrd on various days at various times. (AB)

4742: 3BL, u/i at 1648 w/Architect for rdo check. Request watching designator callsign for Neatishead Radar. Architect answers that Neatishead is on channel Charlie Alpha. At 1658 3BL returns to Architect because they're unable to contact Neatishead on CA. They receive new designator; Delta (4707 kHz). At 1732 3BL shows up on channel Delta & wrks Neatishead. He relays several mssgs to other units and asks if Neatishead has contact w/friendly callsign ROCKY. If not, on what freq can his unit contact ROCKY? Architect answers that ROCKY is on channel Romeo Echo. At 1810 3BL found wrkng ROCKY on 8965 kHz. (AB)

4780: KPA, Mossad stn idling w/KPA2 callup. (ZL)

4788.2: TLK, Cameroon w/wx in RTTY, 50 baud at 0030. (B)

5097.4: CFH, Canadian Forces, Halifax w/ZKR & freqs. RTTY 75 baud at 0440. (RB)

5174: CSY, Santa Maria Air, Azores at 0455 in RTTY 50/750 w/RYS & ID. (RB)

5505: Shannon VOLMET w/wx at 1915. (ZL)

5547: San Francisco ATC wkg Northwest 355 at 0435; Air New Zealand 51, Selcal FHBQ at 0645; Canadian 33 (Vancouver-Honolulu) at 0438. All flights gave posit reports & FL. (MH)

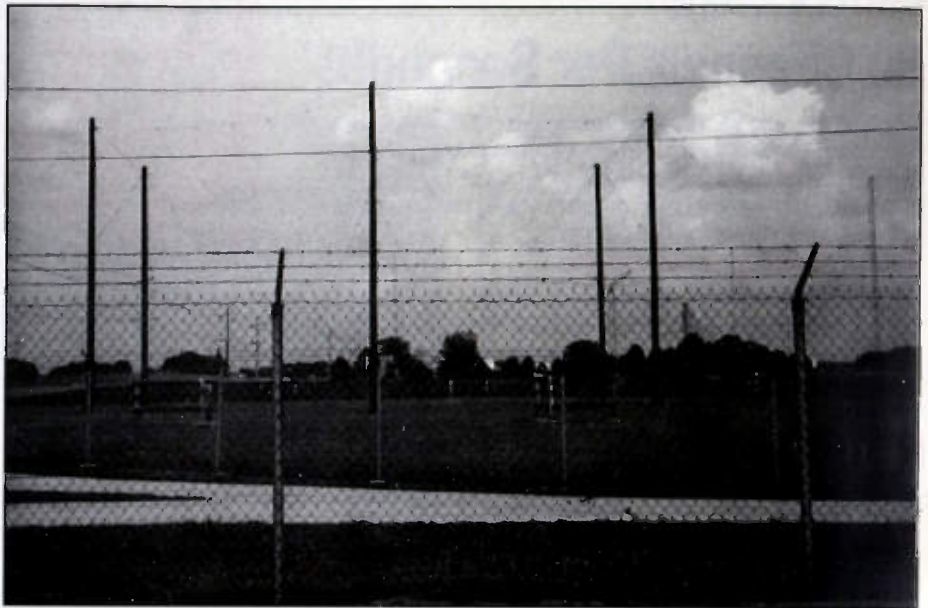
5643: Sydney/Nandi ATC wrkng Qantas 44, United 842 & Qantas 11. (MH)

5680: Edinburgh Rescue W/Rescue 131 & Rescue 11 who were evacuating 19 persons fm oil rig Piper Bavo after an explosion on the rig. Assistance given by Inspection Vessel Birdog 77. Rescue 131 & 11 w/Birdog 77 "thanks for your assistance. Rescue normal operations." All in USB. (AB)

5691: Kuibyshev Volmet in USB w/reduced carrier at 1315. (WR)

5696: CG San Juan in comms w/CAMSLANT Chesapeake and Rescue 1713 at 0204. CAMSLANT in comms w/CG 6034 who departed Elizabeth City Air stn enroute to area C for law enforcement patrol at 2229. (JS)

5718: N2S wkg V4F in USB w/ref to "alligator" (Link-11 freq) at 0315. Prob USN comms but odd freq (Canadian Forces). (RB)



Unable to identify this antenna type.

5732: At 2130 YL/GG rptng Romeo Delta until 2135. Then 5F grps for 208 and 520. (SM)

5740: Every Tue/Thur YL/RR at 1740 w/5F mssg. On this occasion YL rptd 342 for five mins then into 5F grps. Not usual format and the first 5F grp is always 00000. (SM) Has been reported in past that when five zeros are sent it means no traffic. It was claimed that such mssgs were KGB originated? (Ed.)

6227: AADX, USAV Buena Vista (LCU-2008) at 2008 asks AAC2 QSY "Ch. 8." At 2313, ADXX, u/i name (LT-2088) clg AAC2. Both in USB. (RB)

6230: WSR6983, R/V Sea Diver concluding tfc w/unk stn at 1632 in USB. Sea Diver is a Harbor Branch Foundation 99-foot research vessel. (RB)

6416: AFS, USAF, Offutt AFB (Elk Horn, NE) at 0435 in RTTY 75/850 KAWN wx bcst. (RB)

6416.7: CCS, Santiago NavRadio, Chile at 0430 in RTTY 100/170 w/5L grps. (RB)

6673: San Francisco ATC wkg Canadian 4 (Tokyo-Vancouver); American 60 (Tokyo-Dallas); Japan Air 2 (Tokyo-San Francisco) w/position reports. Hrd 1524, 1538, and 1641 respectively. (MH)

6700: Every day at 2135 is unknown RR Meteot stn here and also on 4744 & 5715 kHz. OM & YL are not very professional—sometimes coughing and laughing is hrd. Ends w/lots of rptd numbers. Anybody have any ideas?? (SM)

6730: Russian Voomet w/temps in RR at 2340. (ZL)

6753: CanForce base Volmet at 0335. (NP)

6779: Foll wrkd DHJ59, Wilhelmshaven Naval in EE/GG/RTTY comms: DRDX, German Navy attack sub FGS U-30 (S-179) at 0020; DRES, u/i German Navy ship at 0021; DRAU, German Navy Frigate FGS Koin (F-211) at 0140; DRAX, German Navy masted training sailing barque FGS Gorch Fock (A-60) at 0203; DRDT, German attack Sub FGS U-26 (S-175) at 0233; DRRO, u/i at 0505; DRDK, FGS Glucksburg (A-1414) German Navy replenishment ship at 0511. (RB)

6834.2: NBL, USN NAVSUBASE, Groton, CT at 1543 wkg amateur W9SUM & K1VMI in CW on Armed Forces Day. Also ID & announced QSX 7032 kHz. (RB)

6958: NELP, USS Joseph Hewes (FFT-1078) wkg



An anonymous contributor sent in this photo of the now-closed U.S. Army Field Station at Augsburg, Germany. It was the largest SIGINT site in the free world. The antenna, an AN-FLR/9, was located on an old Nazi airfield.



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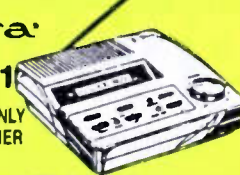
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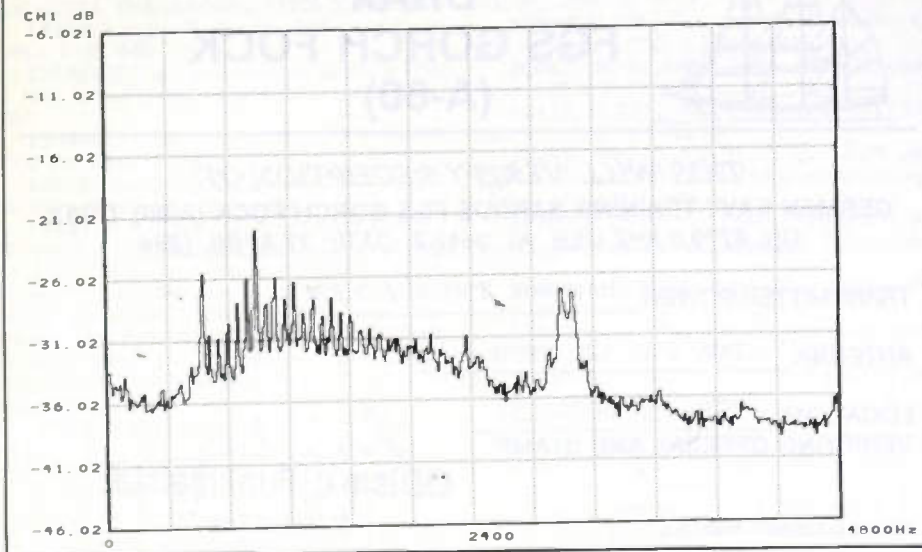
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GM-800	Cellular Telephone Band	\$34.99	(\$4.00)

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Here is a look at one of the raspy dit and dah signals. This one was heard on 11186 kHz, USB. Chart provided by Kevin Tubbs, VT.

CAMSLANT Chesapeake at 0428 in RTTY 75/890 w/RYs. At 0430 w/Unclass t/c & later CAMSLANT sending Unclass RTTY guard. Still here next day. (RB)

6967: Mssg in Sitor-A requesting numerous Navy MARS stns furnish "Afloat Net Report." Hrd 0313. (TD)

6992: Broadway Consumer Net (AZ. Nat. Guard) 57A1. 63A discussing poor band conditions in LSB. Hrd 1530. (WR)

6993: AF-2 wkg Andy at 1830 advises "in the

blocks" & requests pp to CROWN. At 2219, SAM 202 wkg Andrews clearing circuit after pp. Both in USB. (RB)

6997.5: AT3TFC, US Army MARS, Ft. Richie, MD at 1337 wkg AT3TWV passing marsagrams in packet. (RB)

7038.8: SLHFM "D" hrd at 1530. (WR)

7039: SLHFM "F" hrd at 1530. (WR)

7066: 2-tone mkr/beacon hrd one day fm 0400-1500 & not hrd since? (WR)

Randy Humphrey, TX received this letter as confirmation of his Halifax FAX logging.

National Defence Défense nationale

Maritime Forces Atlantic
Headquarters
FMO Halifax, NS
B3K 2E0

4 May 1994

Mr. Randy Humphrey

I am pleased to acknowledge receipt of your letter of 29 April and to confirm you copied our broadcast. It always amazes me the number of letters from around the world we receive from people like yourself and the high quality of reception. We have received letters from Australia, New Zealand, Argentina, Brasil, from most of western Europe and from many U.S. States. I respond to each letter and try to fulfill requests if possible.

We are the Canadian Naval Meteorology and Oceanography Centre and have the mandate to provide meteorological and oceanographic information for a large area of the North Atlantic that Canada is responsible for. In addition we support several bases, NATO, Coast Guard, Fisheries, Merchant Shipping and anyone else who has the capability to copy our broadcast. We broadcast 24 hours a day with the first part of the hour dedicated to facsimile products such as you copied and the remainder of the hour dedicated to radio teletype traffic. In addition we produce a variety of specialized products on request. We operate on a 24 hr/7 day basis and employ approximately 50 military and civilian personnel.

Again thank you for your correspondence and if you should have any requests or questions please do not hesitate to correspond.

R. P. Walton
Chief Petty Officer
Meteorology and Oceanography Centre

Randy Humphrey, TX, received this letter as a confirmation of his Halifax FAX logging.

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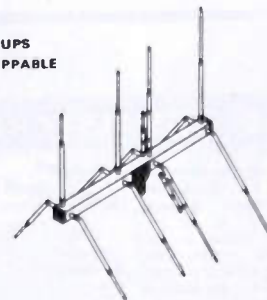
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ON: 6779.0 KHZ USB AT: 0642 Z DATE: 27 APRIL 1994**

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ANTENNA: DuK STA 120 PM/M (7m)

LOCATION: 5704.3N 00744.5E

VERIFYING OFFICIAL AND STAMP:

Richard Baker
OBism of Funkmeister
SSS „Gorch-Fock“

*IF ANY CLASSIFIED, MARK N/A

Richard Baker, OH, shares this PFC with readers.

7395: Bagpipe sound w/5 tones & low tone as guide, weak sig Hrd at 1316. Then at 1325 shifted 10 kHz lower w/S4 sig & s/off at 1431. (ZL)

7445: KPA2 callup at 2151. Mossad stn. (ZL)

7524: TYE, ASECNA, Cotonou, Benin at 0320 in ARQ-M2/96 idling. Later w/ID. (RB)

7535: Norfolk SESEF in comms w/USF Fairfax County (LST-1193) for rdo tests at 1412. (JS)

7763: At 0130 ten dashes the YL/EE rptng 4212 8640 2458. Warble jammer being used on freq. Anyone know the // freq for this nbrs bcst?? (SM)

8173: YL/ rptng Golf Kilo between 1930-1935 with electronic tones. Then 5F grps in GG for 571 and 856. (SM)

8198: 6NBK, Vesl Jewon 55 at 0014 concluding R/T tlc w/WOM, Pennsco, FL. At 0737, 6HLC, vsl Dai Yang 77 wkg WOM for R/T tlc. Both in USB. (RB)

8207: IBBG, American Family Cruises (Costa) SS American Adventure at 1430 w/R/T tlc w/WOM in USB. (RB)

8240: CAMSPAC San Francisco in comms w/several vsls re rescue of another vsl. Hrd at 0012. (JS)

8376: GBTT, Queen Elizabeth 2 at 0203 w/ARQ telex"s. The QE2 was off the coast of Normandy for D-Day anniversary. (RB)

8390: TCJM, Turkish cargo M/V Mehmet Emin at 0355 in ARQ telex in u/i lang. (RB)

8395: 3FJG3, M/V Furunes at 0141 w/ARQ tel-ex re accident w/CSX RR bridge. Weak signal, unknown if this ship or another involved. At 2238, Cyprus flagged cargo vsl, C4ST, Seastar II w/ARQ AMVER/PR. (RB)

8410.5: UIMY, Factory Trawler Peredovik in RTTY 50/170 w/TG's at 0418. (RB)

8746: SPO41, Szczecin, Poland at 0239 w/EE tlc list & ID in USB. (RB)

8764: NRCB, CG Cutter Eagle wkg ComSta New Orleans, trying all SCN freqs w/no joy. Shifted to 8124 kHz for data xmsn to CAMSLANT Chesapeake. Hrd at 0340. (NP) Norm, the Eagle is not a Cutter. It is a Training Bark (WIX327). It is the former German naval training nark Horst Wessel. Was taken by U.S. after WWII as reparation and assigned to CG & is based at New London, CT. Used to train CG cadets on the summer practice cruises. Has speed of 10.5 knots on auxiliary diesel engines and up to 17 knots under sail. (Ed.)

8891: Cambridge Bay ATC wkg Korean Air 983, Selcal KLCP; United 931 (London-San Francisco); Korean Air 028 (Seoul-NY). (MH)

8967: McClellan maintenance running comm checks w/McClellan GHFS at 1438. (NP)

8984: CG 1719 wkg CGAS Clearwater, FL w/mssgs at 1420. The 1719 is an HC-130H. CG 1717, also HC-130H, wkg ComSta New Orleans w/dest. Miami & ETA of 1455. Hrd at 1424. (NP) CommSta

Chesapeake wkg Rescue 2136 at 2311 to go to position off Florida Keys to check for ELT on 121.5 MHz. (TB)

9041.3: 5YE, Kenya Meteo in RTTY, 100 baud w/RYS at 2330. (B)

9920: At 0130 YL/EE rptng 208. At 0135 694 694 138 138 & into 5F grps ending w/00000. Jammed. (SM)

9983: At 1500 CW stn sending 865 then at 1505 116 116 25 25 then into slow 5F grps. Ended w/three long tones. (SM)

9994.4: CSY, Santa Maria, Azores in RTTY, 50 baud w/RYS at 0130. (B)

10133: NPL, DIRNAVMAIRCORMARS REG 5, San Diego, CA in RTTY, 75/170 w/Armed Forced Day mssg fm SecDef. (RB)

10215: HZN46, Saudi Arabia w/wx in RTTY, 100 baud at 0130. (B)

11110.5: RFLI, FF Fort de France, Martinique in ARQ-E3/192 idling at 0350. (RB)

11174: Foll hrd in USB at 0346: "CFI CFI Delta Tango Papa Sierra Sierra Two, Message follows," (rpts

above). Then, "I say again Three Julia Golf Yankee Victor Julia Lima Charlie November Tango Five Victor Quebec Romeo." (TF)

11176: Reach 33421 wkg Ascension GHFS at 0327 w/request for RAF Alconbury (U.K.) wx (NP)

11178: PAMA in comms w/PJX, u/i, relaying 5L grps at 1453. (JS)

11202: RAF Volmet w/wx in EE at 1705. (ZL)

11217: Sentry 54 (E-3) wkg Bayonne GHFS w/pp to Friffiss Ops re exercise at 2031. (NP)

11226: SAM 60204 (VC-20) wkg Andrews at 1940 on X-905 re departure & ETA. (NP)

11234: Cyprus Flight Watch in comms w/Ascot 50 w/x conditions for u/i location. Hrd at 0200. (JS)

11306: Lima ATC wrkng foll flights between 0507-0521: American 905 (Miami-Rio); American 999 (Miami-Sao Paulo); American 923 (Miami-La Paz) (MH)

11342: San Francisco wkd United 845 (San Fran-TaiPei), w/Company tlc re inoperative coffee machine. Company said stewardess should bleed lines, it is a common problem. (TF)

11441.5: YL/EE rptng 9870/7386/7581 1330-1340 then off. Also on 8560 kHz in parallel. At same time identical YL rptng 7862 and 5797 on 16434 and 13423 kHz. (SM)

11545: YL/GG rptng Oscar Alpha fm 1600-1605. Then 5F grps for 039& 122. (SM) Lincolnshire Poacher bcst w/heading 27557/1650/2.5. QRM fm OAOAOA then in 5gs in EE. (ZL)

12250: Ship-to-Ship (both u/i) chatter on SSB at 1815. AM carrier came in at 1823. (MK)

12305: Kilo Uniform Vera, Vessel Operators, Houston, TX in SSB at 1827 re installation check-out in Stuart, FL. (MK)

12480.5: ELNG6, Celebrity Cruises M/V Horizon w/ARQ telex at 1709 confirming boarding of added passengers. A2KB, M/V Sunrise at 1738 w/ARQ telex to Sunship w/position report. (RB)

12491.5: PPUX, Frotaarguay, Brazilian flagged bulk carrier at 2247 w/ARQ telex in SS. (RB)

12494: PJKH, Vsl Spring Tiger w/ARQ AMVER/FR (Arrival report.) (RB)

12561.5: UIZC, Fish Factory vsl Pionersk at 2241 in RTTY 50/170 w/TG's to Kalingrad. (RB)

12563: UVAM, Tanker Kapitän Stankov at 2219 w/ARQ TG's to Novorossiysk, also appears to be TG's from other ships incl UMAQ, u/i. (RB)

13080: WBP9043. Vsl Slipaway wanted call Arizona via KMI High Seas stn. Unable place call because KMI opr said vsl calling card expired. After some questioning, High Seas said, "Sorry, looking at wrong ship reg." Call placed only to have answering machine come on! (TF)

13104: WOO, Ocean Gate, NJ clg vessels in SSB

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at 1843 foll by ship-shore phone calls in SS. (MK)
13217: NIGHTWATCH wkg OVERFLOW on X-906 at 2016. Then switched to 11226 (X-905). (NP)

13260: London Heathrow w/wx conditions in SSB at 1938. (MK)

13336: KLM a/c w/Amsterdam LDOC in USB at 1351 a/c on ground somewhere & has problem. (AB)

13380: OM/EE rptng 273 273 273 00000 1930-1935 then off. (SM)

14356: GFL24, Bracknell Meteo at 2047 in RTTY 50/40 w/encoded wx. in AA (RB)

14441.5: Foll USN MARS stns clg ASSMS: NNNONXL, USS Ashland (LSD-48) at 1858; NNNOCVV, USS Yellowstone (AD-41) at 1903; NNNOCZI, USS Merrimack (AO-179) at 2201, NNNOAMD answers; NNNOCMK, USS DeWert (FFG-45) at 2222; NNNOCVM, USCGC Thetis (WMEC-910) at 2226; NNNOCTM, USS Williams (FFG-15) clg NNNOEAC NNNOPQR answers at 2301. Estocin is on Great Lakes Cruise 91. (RB)

14452: HMF57, Korean Central News Agency, North Korea in RTTY 50 baud w/nx in FF at 1310. (B)

14488.5: AAH, Fort Lewis, KY at 0440 w/FEC mssg fm SecDef for Armed Forces Day. (RB)

14498: SUC, Cairo, Egypt aero in RTTY 50 baud w/wx at 1220. (B)

14699: YIX70, Iraqi News Agency, Bagdad, Iraq in RTTY 50 baud w/nx in AA at 1230. (B)

14736: Stn in FSK Morse clg WFO and stn in CW on 13381.5 kHz replies by calling MIG. QSY requested, first from 14736 to 12004 kHz and then to 13016 kHz. Then 3 mssgs sent in RTTY 75/500 w/foll headings: 11177 00125 06598 22754 01698; 11199 00125 00000 22755 00039; 11177 00125 00000 22756 02251. WFO QSLs mssgs. WFO believed to be Russian UN Legation and MIG believed to be Russian HF relay station in Cuba. Suspect this MFA t/c xmt'd from Moscow to Cuba via Satellite? Above t/c was passed at 1415 UTC sked which held Mon thru Sat. Same stns hold 2115 Mon-Sat sked also. (Ed.)

14761: YWM1, Maracaibo, Venezuela. This Naval stn in RTTY 75 baud w/tfc in SS at 1230. (B)

14945: YL rptng Kilo Whiskey fm 0930-35 w/electronic tones. Then 5F grps in GG for 513, 023, and 091. (SM)

15920.4: CFH, Canadian Forces, Halifax in RTTY 75 baud w/ZKR & freqs at 1615. (B)

16067: IRO30, ANSA, Italy in RTTY 50 baud w/nx in EE at 1815. (B)

16117: 6VK317, PANA, Senegal in RTTY 50 baud w/nx in FF at 1300. (B)

16451: After 10 tones YL/EE rptng 8270 and 3302 between 0730-0740 w/warble jammers on top of sig.//13581 kHz. (SM)

16703.5: DZUV, M/V Handy Explorer at 2136 w/ARQ telex via PCH65, Scheveningen, Netherlands. (RB)

17074: LGB, Rogaland, Norway at 1840 in CW w/tfc list & then into CQ mkr. (RB)

18230: GFL25, Bracknell, England Meteo stn in RTTY 50 baud w/wx at 1330. (B)

18496: CNM80, MAP, Morocco in RTTY 50 baud w/nx in EE at 1330. (B)

19865.7: YZJ4, TANJUG, Yugoslavia in RTTY 50 baud w/nx in FF at 1630. (B)

20474: YL/EE at 1000 rptng 61722 in between u/i tone. Also on 19884 kHz. At some time "Lincolnshire Poacher" was on 14487/15682/16084. This new stn uses same YL/EE as LP stn and is known as LP2 until tune ID is made. (SM)

26250: SLHFM "R" in CW at 1346. (AB)

27555: U/i in SSB at 1756. OM Passing nbrs & phonetics incl 2206 w/stn I could not hear. (MK)

Contributors this month include: Trevor Fletcher, Alberta, Canada; Mark Heywood, Alberta, Canada; Thomas Borden, NS, Canada; Simon Mason, England; Zacharias Liangas, Greece; Ary Boender, Netherlands; Ben Bauman, CA; Todd Dok-ey, CA; Wayne Rankin, CA; Bunky, IL; Norm Pihale, MN; David Krause, Jr., NY; Richard Baker, OH; Matt Kiner, PA; John Salamone, PA; and John Wolozynm WI. ■

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CIRCLE 74 ON READER SERVICE CARD

HOW I GOT STARTED

Popular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of Popular Communications, and none can be acknowledged or returned. Entries will be selected for use taking into consideration if the story they relate is especially interesting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve style.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to Popular Communications.

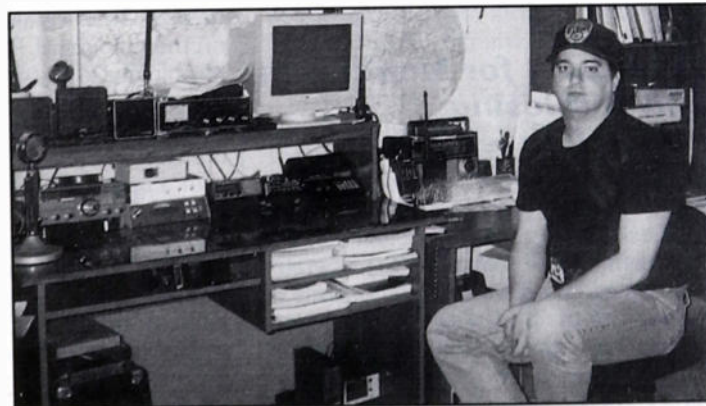
Address all entries to: How I Got Started, Popular Communications, 76 N. Broadway, Hicksville, NY 11801.

Our November Winner

This month, Steven Isoldi, N2YGH, of Jackson Heights, NY, tells us about the beginning of his shortwave adventure:

"It all started when I was 11 years old. A friend's older brother had a CB radio, and after the first listen I was hooked! (I used to help his brother with his paper route in the worst weather you could imagine just to get a chance to talk on that thing!) The following Christmas I received my own real CB —then I promptly quit the paper route.

"After a few years, CB radio hit its peak and became really



"Radio Beast" Steve Isoldi unplugged his electric guitar to continue his love of shortwave radio.

congested, so when I was 16, I sold my radio gear and bought a guitar. I played in bands, wrote songs, and basically giggered around for ten years. My radio hobby remained on hiatus at the time.

"Then I fell in love, married my lovely wife Edna, and I left the music scene. Our first Valentine's Day together, she gave me a Realistic Pro-57, and the radio beast was unleashed once again! She had no idea what type of animal she set free!

"I am now a licensed ham, and own three base scanners, four handheld scanners, two amateur HT's, a Universal M-400 decoder, and an HF rig. It just goes to show you, once you are bitten by the radio bug, it never leaves your system!" ■

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Pirate Stations Shut Down; FCC Fines Operators \$20,000

Two pirate FM radio stations broadcasting news, music, and religious programming to the Haitian community in Queens were shut down and the operators fined a total of \$20,000.

An engineer from the New York Field Office identified two unauthorized FM radio stations operating on 87.9 MHz and 87.5 MHz, just below the standard FM broadcast band. By the use of mobile automatic direction finding equipment, the engineer located the stations in Hollis, Queens.

The operators of the stations, Samuel Menager, operating as Radio Centrale, and Pierre Brutus, operating as Radio Concorde, were fined for unlicensed radio operation.

The investigation was initiated by complaints from local residents who were experiencing severe interference to home entertainment equipment.

Unlicensed radio operation is a violation of Section 301 of the Communications Act. Operating a radio station without a license may subject the operator to criminal penalties and fines of up to \$100,000 and/or one year in prison.

"We hope that this action sends a message to would-be pirate operators. Unlicensed radio operation is a crime and in violation of federal law," said Alexander Zimny, engineer in charge of the New York Field Office.

Complaint for Monitoring and Disclosing Phone Conversation

The Commission designated a hearing for a complaint by Elehue Kawika Freemon and Lucille K. Freemon against AT&T. The Freemons alleged that an AT&T operator intercepted and disclosed the contents or meaning of their telephone conversation, in violation of the Communications Act.

The issue to be decided is whether AT&T's action violated Section 705 of the Act and, if so, whether the Freemons suffered any measurable harm as a consequence of such violation and are entitled to an award of damages.

According to the Freemons, who are mother and son, an AT&T operator monitored Elehue Freemon's operator-assisted call to his mother and improperly interrupted and divulged the contents of dispatched the local police to his residence. Elehue Freemon was subsequently taken to a Portland hospital by the police and detained in protective custody for four days.

AT&T alleged that the operator determined that the son was in an emergency

situation when he attempted to place the call. It said the operator, consistent with AT&T's emergency procedures, advised the mother of the son's condition and was requested by the mother to get emergency help for the son.

The complainants and AT&T thus present widely divergent versions of the operative facts in this case. The factual dispute centers principally on the length of the telephone call in question, whether the complainants ever had a conversation during the course of the call, the operator's actions during the call, and the point at which the operator transferred the call to Oregon emergency services.

Seek Further Comment Concerning Treatment of Mobile Services

The FCC is seeking further comment on whether management agreement and resale arrangements should be treated as attributable interest for purposes of applying the Commission's rules relating to: 1) the personal communications service (PCS) spectrum aggregation cap; 2) the PCS-cellular cross-ownership restrictions; and 3) overall commercial mobile radio service (CMRS) spectrum aggregation cap the Commission may establish.

On June 13, 1994, the Commission reconsidered and clarified the rules for broadband PCS. The Broadband PCS Reconsideration Order retained certain limitations on the amount of PCS spectrum that can be obtained in any geographic service area. Generally, an entity may acquire attributable interests in a maximum of 40 MHz of licensed broadband PCS spectrum. Parties with attributable cellular interests, however, may obtain only 10 MHz of licensed broadband PCS spectrum, for a total of 15 MHz of PCS spectrum in their cellular service areas. The Order also specified certain interests that the FCC would consider attributable interests in order to determine the maximum amount of PCS spectrum for which an entity may be licensed.

In this proceeding, the Commission will consider whether certain additional non-equity relationships should be attributable interests for purposes of applying particular PCS eligibility rules or a more general CMRS spectrum cap.

Commentaries are asked to address whether there are relationships, not included in the PCS attribution rules, that do not rise to the level of control, but nonetheless should be considered attributable because these interests may affect the incentive or ability of PCS and other CMRS licensees to compete vigorously in the marketplace.

Specifically, the Commission solicited

comments on whether management agreements or similar arrangements that do not confer de fact control on a party other than the licensee should be considered attributable interests. In this regard, the Commission expressed concern that management agreements may permit the manager access to market sensitive information such as business plans, customer lists, product and service development, marketing strategies. If the manager is also a licensee offering a competing service, access to such information might enable it to impede vigorous competition.

The 500-506 MHz Band in New York City

A Request of Waiver of Parts 2 and 90 of the Rules and Regulations to permit use of frequencies in the 500-506 MHz band (television Channel 19) was submitted by the New York City Transit Police Department (NYCTPD). NYCTPD is designing a new UHF communications system and is requesting 15 channels for voice and data. NYCTPD states that unique circumstances, including the lack of available spectrum in New York City for emergency communications and the inability to provide adequate interoperability between public safety agencies, justify a waiver.

While the 500-506 MHz band is the subject of a pending low power television (LPTV) request in New York City, studies by the Commission indicate that this band is not suitable for full power television or for advanced television (ATV) use in New York City because the band is used by land mobile radio services in Philadelphia. Further, the FCC's preliminary analysis indicates that grant of this request would not affect the ATV Table of Allotments currently under development by the Commission. The FCC requests comments on this preliminary conclusion, as well as on the following questions:

1) Does the pending LPTV request for use of the 500-506 MHz band, or other potential uses for this band, mitigate against grant of the waiver?

2) If granted, what imitations should be placed on the waiver to protect other potentially affected users?

Form 393 for Use with 1994 FCC Cable Rate Regulations Available for DOS' Lotus

The Commission released a spreadsheet version of Form FCC 39 in Lotus 123 for DOS format with corresponding instructions. The spreadsheet is available through International Transcription Service. ITS

can be reached by calling (202) 857-3804. The charge is \$5 per disk plus a \$10 per order handling fee.

All disks are accompanied by a cover page that lists the names of the files and important information about their use. The Commission will make other versions of the spreadsheet available in the future as demand necessitates, and will release a similar notice with each new release. We strongly encourage individuals to await the

Commission's official release of these other versions, rather than attempting program conversions into other commercially available software. The Commission will not accept computer generated Form 393's by spreadsheets other than those produced by Commission-provided programs. We regret that the Commission cannot provide assistance to users of non-Commission released formats.

Individuals requiring assistance with

these releases may call (202) 412-0856. Please indicate that you are seeking assistance with the disk software so that your call can be connected properly.

Changes in Amateur Processing Procedures

The Federal Communications Commission recently changed the processing procedures for modifications of amateur li-

Paying Regulatory Fees

Here are the qualifications:

1) You must be paying for 50 regulatory fees or more, and 2) your organization must possess the knowledge and ability to provide the necessary automated information on floppy diskette(s) in ASCII format without technical assistance from the FCC.

In order to allow for the submission of regulatory fee payments and the accompanying data diskettes involving multiple transaction, the following instructions must be followed:

1) *Preparation and submission of the hardcopy FCC Form 159.* Note: Always read the instruction for using the FCC Form 159 (Remittance Advice) before filling out any of the blocks.

When completing the FCC Form 159 you must fill out the following blocks:

- Block Number (1) the FCC Account Number
- Block Number (2) Total Amount Paid
- Block Number (3) Payer Name
- Block Numbers (4), (5), (6), (7), and (8). Your complete address including zip code.
- Block Number (9) Daytime Telephone

Number. This must be the telephone number of an individual knowledgeable about your submission. This individual should be able to answer any questions regarding the data and/or be able to replace the diskette in the event it is damaged. Please include the name of the individual immediately after the telephone number listed in Block Number (9).

In addition, and unique to this proceeding, we are asking you to try to complete the blocks numbered (14a) and (15a), payment type code and quantity, respectively, of the ITEM #1 INFORMATION section of the FCC Form 159.

In block number (14a) (hard copy of FCC Form 159 only) please enter "ZZZZ" as the payment type code.

On the data diskette you will be entering the appropriate payment type codes for which you are paying. The appropriate payment type codes as well as other filing requirements were published by Public Notice in June 1994. Please refer to the applicable Public Notice or Fee Filing Guide for details. In block number (15a) please enter the total number of transactions (regulatory fees) for which you are paying. Example:

if your diskette includes 50 call signs, indicate in block number (15a) "50."

2) *Preparation and submission of the data diskette.* Data should be submitted on a 3.5-inch high density diskette and should be mailed along with the FCC Form 159 in a diskette mailer to Federal Communications Commission, Regulatory Fees, P.O. Box 358835, Pittsburgh, PA 15251-5835

The diskette should contain one ASCII data file on the following format. Each record should be terminated with a new line character "\n" following the 132 data characters. There should be one File Header Record as the first record in the file. There should be one Data Record for each fee paid as listed on the Form 159 submitted with the payment. Continuation diskettes may be used where the continuation diskettes contain data records only. The first diskette should be clearly labeled as "disk 1 or x" and any subsequent diskettes clearly labeled "disk 2 of x," etc.

With the exception of two optional fields, all fields are required. The two exceptions are FCC Code 1 and FCC Code 2. Data should be present in these fields when the appropriate fee guide has instructed you to provide data in these fields on the FCC Form 159. Otherwise, these fields will be space filled.

The purpose of the File Header Record is to identify the file submitter and to link the data to the earlier fee payment. Therefore, the File Header Record should contain the FCC Account Number and Payer Name used on the FCC Form 159 submitted with the payment. The contact name and contact telephone fields are furnished to permit the Commission to contact a responsible person in the event your submission is not usable.

All numeric fields are right justified and zero filled. All alpha/numeric and alphabetic fields are left justified and space filled.

Field 2 of the File Header Record—Numeric only—no dollar signs, commas, or decimals, right justify and zero fill.

Field 4 of the Data Record—Numeric only—no dollar signs, commas, or decimals, right justify and zero fill.

EXCEPTION: Private Radio Bureau Regulatory Fees are paid in advance along with the application fee at the time the application is filed, therefore they are excluded from this procedure. For further information contact the FCC Fee Hotline by calling (202) 418-0220.

File Header Record (One per file):

Field #	Field Size	Field Position	Field Type	Field Description
1	10	1-10	A/N*	FCC Account Number
2	12	11-22	Numeric	Amount of Check or Electronic Payment
3	30	23-52	A/N	Payer Name
4	4	53-56	Numeric	Number of Data Records to follow including the File Header Record
5	10	57+66	Numeric	Contact telephone number
6	30	67-96	Alpha	Contact name
7	36	97-132	Blanks	Filler

Data Records (One per fee paid):

Field #	Field Size	Field Position	Field Type	Field Description
1	10	1-10	A/N*	FCC Account number
2	4	11-14	A/N	Payment type code
3	10	15-24	Numeric	Quantity
4	12	25-36	Numeric	Fee amount
5	10	37-46	A/N	FCC call sing or other identifier
6	30	47-76	A/N	Licensee Name
7	11	77-87	A/N	U.S. or Foreign zip code
8	15	88-102	A/N	FCC Code 1
9	30	103-132	A/N	FCC Code 2

*A/N=Alpha/Numeric

censes. Applicants who request a modification of their license, i.e., examination for upgrade, change of name, change of mailing address or change of call sign will retain the existing license term.

Club stations will be granted a ten-year license term. The expiration date will no longer be associated with the expiration date of the trustee.

FCC Form 574 No Longer Accepted in Renewal Lockbox

FCC Form 574 will no longer be accepted in the Private Radio Bureau's Land Mobile Renewal Lockbox 358245.

PR Docket 92-78 released October 2, 1992 allowed FCC Form 574 to be filled in lieu of the renewal forms, FCC Form 574R and FCC Form 405A, until they were revised to include a mobile category. Both FCC Form 574R and 405A have revised and now include that category.

Because different Regulatory Fee amounts are assessed to Land Mobile applicants and the FCC Form 574 does not contain Payment Type Codes or require FCC Form 159, it is impossible to determine fee accuracy. Eliminating acceptance of the FCC Form 574 for the purpose of renewing a license will facilitate the fee process.

Further, the volume of FCC Form 574's currently received in the renewal lockbox 358245 is low and therefore, will not impact the public. ■

Beaming In (from page 5)

agency told him he could reapply, but he would have to send another payment. Our reader complained that the only reason the application wasn't signed was because the request was printed so small and inconspicuously, and in such a light colored ink, that he hadn't even seen the demand. He wrote to tell us that he wasn't about to send the FCC another cent, and considered that he had completed his renewal obligations and was continuing to operate his station. Here's a perfect example of an FCC form that is out of synch with users.

I realize the Government prides itself on generating forms that are as confusing as possible. Certainly, the FCC is a long way from the top of the list of offenders. Still, it is necessary for the agency to have forms that even the Frequency Coordinators can't deal with properly?

In the 1970's, when CB radio became popular, the FCC had the good sense to drop its lengthy, confusing Form 505 and replace it with a simple short, informal application for a CB license. This was a step in the proper direction. Not soon after, too many applications began arriving at the FCC. The agency's personnel and computers went into overload status, and couldn't handle the volume. Errors were made, such as the assignment of duplicated call letters by the tens of thousands. Ultimately, these

factors probably contributed to the FCC giving up, and simply announcing the end for the need of CB licenses.

Still, the concept of a simplified license application form was a worthwhile idea insofar as the public was concerned. We'd like to see this tried in at least some of the Private Radio Services, for instance, those existing applications the public can't figure out particularly well.

It's Only a Movie

The foregoing shows how the general public just loves radio—has always loved it—but steadfastly remains blissfully unaware of, and unconcerned with anything more complicated than plugging one in, and turning a dial.

This is something I realized when I was a kid and first became fascinated with radio. I remember when I was 12 years old, and went to see the movie *The House on 92nd Street*. This was a truth-based story about how FBI counterespionage agents rounded up a World War II New York City spy ring. In the story, a trapped FBI agent uses a few pocket items to modify a radio receiver into a transmitter by merely changing some wires around. He then uses this transmitter to call for help. His signals are picked up by a government monitoring station.

I was really impressed with this. Therefore, I promptly wrote to Twentieth Century Fox, the company that made the film. My request was for them to send me the instructions needed to change my receiver into a transmitter. In reply, I received a two page personal letter from Spyros Skouras, the President of the company. He thanked me for my letter, but didn't provide the information I had requested. Instead, he wrote at length about there being certain special techniques used in presenting stories as film entertainment.

The letter made little sense to me, so I asked my Dad to explain it. After all, he was also in the film industry. After reading the letter, he summed it up with, "The man told you not to take what you saw too seriously because it's only a movie." I assumed the technique I had asked about was really an FBI secret.

By 1948, I was 15 years old and active in SWL with a Hallicrafters communications receiver. That's when I went to see the war movie *Jungle Patrol*. I had now become very observant about radio in movies, and was horrified by what I saw in that film's communications tent. There was a bunch of radio equipment topped off with a separate Hallicrafters loudspeaker, which was upside-down! Some Hallicrafters speakers had their logo, a large lower case "h," across the entire grille. In this movie, upside-down, it looked like a "y."

My reaction was to send off a letter to my pal, Spyros, over at Twentieth Century Fox. I reminded him of our earlier correspondence. I told him I felt duty bound to bring this grievous and obvious error in his film to his attention. Two weeks later, I received a letter from him. I needed no expla-

nation of its contents. That's because it was identical to the letter I had received from him three years earlier. I realized it was a form letter the company sent out to all who wrote in with comments similar to mine.

That cured me of sending letters pointing out flaws, goofs, and dumb things about radio in movies and TV programs. It didn't stop me from spotting them. Over the decades, I have seen hundreds. It's made me realize how the people who put these films and shows together seldom have any concept of what the hell radio is all about. No matter how hard I try to overlook such things, when I watch a movie or TV program, I'm always on automatic pilot.

If I dare say anything about the error to my family during the film or TV show, they all throw couch pillows or popcorn at me. My XYL shouts, "Write to your friend at Twentieth Century Fox." OK, so they're infidels, but you understand how it is.

I wasn't at all pleased back in the 1960's when the *Andy Griffith Show* had an Eico ham transmitter as a prop in the sheriff's office. And I still haven't forgotten how the 1960's realistic New York City police TV show *Naked City*, a forerunner of today's *NYPD Blue*, kept using Lafayette CB rigs as police VHF radios.

During the 1970's, I suffered through the glut of CB-oriented movies and references in TV shows, most of which bore only a minimal resemblance to CB radio as it actually was at that time.

More recently, I winced at Hollywood's preposterous view of pirate radio in the 1990 film, *Pump Up The Volume*, as well as its schlock-budget 1979 predecessor, *On The Air Live With Captain Midnight*. Neither was any more inaccurate than the 1990 saga, *Zoo Radio*.

Last year's Stallone action epic, *Cliffhanger*, was a treasure chest full of strange and bizarre communications accomplishments. There were cellphones being used in aircraft, and the odd coincidence of the bad guys' communications frequency being the one the Feds used for their own comms. Many other amazing radio feats and coincidences also showed up. After watching *Cliffhanger*, I needed aspirin.

Yes, yes I know—like the man said, it's only a movie.

Each time I watch the NBC-TV sitcom *Wings*, it causes me to want to comment with annoyance about the airline's (never used) weird two-way radio. Early shows didn't have the prop, then it suddenly popped up in the office. The radio, shown with a desk mic, seems to be a Hallicrafters S-22R "Skyraider Marine" This is an antique SWL receiver manufactured between 1940 and 1946. Can't understand why my family quietly sneaks out of the TV room as soon as *Wings* comes on.

Sure, it's only a TV program. How many people in the audience know that things are out of kilter? How many care? How many know the difference between Burke's Law and Ohm's Law? How many can properly fill out an FCC license application? ■

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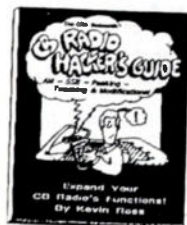
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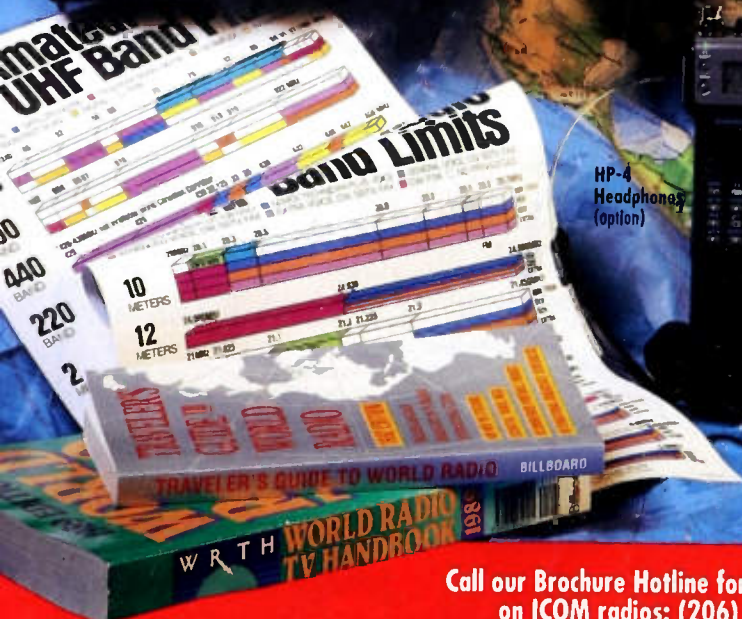
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